UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF TENNESSEE
NASHVILLE DIVISION

JOHN RUFFINO and MARTHA RUFFINO, Husband and Wife,

Plaintiffs,

v.) No. 3:17-cv-00725

DR. CLARK ARCHER and HCA HEALTH SERVICES OF TENNESSEE, INC., d/b/a STONECREST MEDICAL CENTER,

Defendants.

DEPOSITION OF RAJAT DHAR, M.D.

April 17, 2018
9:02 a.m.

Reporter: John Arndt, CSR, CCR, RDR, CRR
CSR No. 084-004605
CCR No. 1186

DEPOSITION OF RAJAT DHAR, M.D., taken pursuant to Notice of Taking Deposition, before John Arndt, a Certified Shorthand Reporter and Certified Court Reporter, at Washington University School of Medicine, McMillan Hall, 517 South Euclid, Suite 407, in the City of St. Louis, State of Missouri, commencing at approximately 9:02 a.m. on April 17, 2018.

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INDEX OF EXHIBITS

(Exhibits are attached.)

The witness, RAJAT DHAR, M.D., first having been duly sworn, testified as follows:

QUESTIONS BY MR. GIDEON:

Q. Good morning. My name is C.J. Gideon. I represent StoneCrest, the hospital. The man to my left, Bryant Witt, who represents Clark Archer.

A. Okay.

Q. I read two depositions you've given so far. Have you given more than that?

A. No. Two depositions. Right.

Q. All right. Let me cover some general rules I want you to keep in mind. First, listen to my question. If you do not understand it, do not answer it. Tell me you don't understand it, and I'll do a better job the next time.

A. Okay.

Q. Secondly, answer the question directly, and then if you need to give me an explanation, you can, and I'll let you do that.

A. Okay.

Q. All right?

A. Yes.

Q. Third, I just asked you a few moments ago if you had any clinical responsibilities today. If you do, if you get a page from a resident or a fellow, just

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tell me, we'll stop, you can address that, or you can address anything as a matter of personal comfort. This is not designed to be difficult or burdensome for you at all.

A. Thank you.

Q. Fair enough?

A. Yes. I shouldn't have any until at least -- till 2:00. I don't have anyone who will be calling me for clinical reasons until then.

Q. Now, we were told originally that you were available from 9:00 until 3:00. You're now telling me it's 2:00. When did that change?

A. No, I have to take over at 3:00, so I have to kind of start wrapping up and be ready to go to meet the physician I'm taking over for by 3:00. So depending on where we were and how long it takes to wrap up, 2:00 would be a safe time to finish so I can be over the deposition by 3:00 at the latest. So I think that's why I said 3:00 initially.

Q. Is your entire file in front of you?

A. Yes.

Q. You've not kept anything back?

A. No.

Q. Have you done all you need to do to form all of your opinions in this case?

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A. Yes.

Q. Are you awaiting any additional information at all?

A. No.

Q. I want to talk about the chronology. When is the first time you were contacted to participate in this case? And if you wish to do so, you're free to look at the file. The key is the date.

A. Okay. Looks like November the 20th was the first date I received the records and heard about a case.

Q. What year?

A. Of 2017.

Q. Now, were you contacted to participate in this case by a witness brokerage firm?

A. Initially I believe I heard about the case through a brokerage firm, yes.

Q. What's the name of the witness brokerage firm?

A. I believe it was Elite Medical Experts or Elite Experts.

Q. When did you first receive any contact from an outfit called Elite Medical Experts?

A. In reference to this case?

Q. This case, yes.

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A. I believe it was in the few days before the 20th of November 2017.

Q. So then in terms of being fully accurate and honest with me, your first contact in this case was before November 20th, 2017; correct?

A. Yeah, I don't have that exact date in front of me from these e-mails. But --

Q. But it was before?

A. It would have been some -- an e-mail from them a day or two before that, I believe.

Q. Where is the e-mail from Elite Medical Experts?

A. That was not -- I believe it was the e-mails to Mr. Cummings that I was asked to provide, I believe, so I didn't print that e-mail off.

Q. Well, we'll ask that you do that.

A. Sure.

Q. That you print out any e-mail traffic from Elite Medical Experts dealing with this case.

A. Okay.

Q. And we'll add that as an Exhibit 1 when you supply it?

MR. CUMMINGS: C.J., let me help you with your request. I think he's got the name of the group wrong so I don't want you to limit it. I think the

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name is The Expert Institute.

A. Oh.

MR. GIDEON: Well, we'll see.

MR. CUMMINGS: But your request was -- I don't think you're going to find one from Elite.

A. Okay.

Q. (By Mr. Gideon) Which one is it? You should know.

A. I don't keep a record of that here. Usually they just contact me, and then I worked with Mr. Cummings since then, so I haven't -- there's a few different companies I worked with over the years, so I don't keep a record.

Q. Right.

A. Okay.

Q. Well, one of them that you referred to in the past is an outfit called Health Care Litigation.

A. That sounds right.

Q. You referred to that company in the Cassie McGill (ph) case.

A. Okay.

Q. In the Wesley case, the other deposition I read, you said you were hired by Elite Medical Experts in that case. So I've heard of two.

A. Hmm.

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Q. Now there's a third.
A. Hmm.
Q. What was the name that Mr. Cummings just mentioned?
A. The Expert Institute, I believe.
Q. Yes. Okay. Do you --
A. Sometimes the names change, so -- I know one company has changed names from one to another, so sometimes it's hard to even keep track of who's contacting you.
Q. Do you have a written agreement with The Expert Institute?
A. I don't believe so, no.
Q. Have you had a written agreement with them?
A. I don't believe so, no.
Q. Do you have an expert written agreement with Health Care Litigation?
A. Not to my knowledge. I believe there was one institute where I had had an agreement, but I can't -- that was many years ago, and I don't recall which one that was.
Q. Who was that?
A. I don't recall.
Q. Have you had a written agreement with

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Elite Medical Experts at any time?
A. No.
Q. How did you get on their brokerage list where they connect you with lawyers?
A. I have no idea.
Q. Did anybody from Elite or Health Care Litigation or The Expert Institute ever call you and say, "Is it okay if we pair you up with lawyers filing lawsuits?"
A. Not to my recollection.
Q. How do they get compensated?
A. I'm not aware of that.
Q. Do you know if they bill the lawyers and then they, the brokerage, pays you? Is that how it works?
A. Not to my knowledge in all cases, at least.
Q. Do you know if the lawyers have to pay those brokerage firms a flat fee?
A. I'm not aware.
Q. You're not aware of the details at all?
A. No.
Q. All right. Well, back where we were a few moments ago. I wanted to figure out when you first got involved, and you said, in terms of what you could

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confirm today, you had some contact with an expert brokerage firm sometime in advance of November 20th. Then you looked at something and you said you had a contact November 20th, 2017. Who was it with, please?
A. November 20th, it was with Mr. Cummings.
Q. And do you have an e-mail to that effect?
A. Yes.
Q. May I look at it, please? All right. Looking at the letter -- or the e-mail, rather -- of November 20th, 2017, which we'll make an Exhibit 2 -- do you mind if I look at --
A. Sure.
Q. He makes reference to a letter. And I've seen it. Here's -- pass it down to the court reporter.
[Exhibit 2 marked for identification.]
Q. Maybe it's in this file.
A. You're referring to the letter of -- about the case?
Q. Yes.
A. Okay.
Q. It's -- okay. Okay. So we have the November 20th, 2017, e-mail that makes reference to a letter that's dated the same day from Mr. Cummings that includes a series of factual representations about the case, and the e-mail says it accompanied a set of

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StoneCrest records; correct?
A. Correct.
Q. Is this the letter?
A. Yes, this is the letter.
Q. All right. We'll make that Exhibit 3.
[Exhibit 3 marked for identification.]
Q. (By Mr. Gideon) In terms of your engagement in this case, Dr. Dhar, before we started this morning, who else have you spoken with about this case other than Mr. Cummings?
A. I don't believe I've spoken with anyone apart from Mr. Cummings about this case.
Q. So the answer is no one?
A. No.
Q. When is the first time you met Mr. Cummings in person?
A. Yesterday evening.
Q. What time?
A. Just before 5:00 PM.
Q. And how long did the meeting last?
A. Approximately one hour.
Q. So that's the only in-person meeting you've had with any lawyer in this case before we started this deposition this morning?
A. Prior to today, yes.

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Q. Do you know when this lawsuit was filed?
A. Not off the top of my head, no.
Q. I've looked through the file materials which you told us a few moments ago happen to be your entire file, and I've not seen a copy of the complaint. And I realize you're a neurologist and not a lawyer, but you know the complaint is the initial document that gets filed to start a lawsuit. It's the who sues whom and why; right?
A. Okay.
Q. You know that from prior experience, don't you?
A. Seems reasonable, yes.
Q. Have you ever seen the complaint in this case?
A. I don't believe so, no.
Q. Have you ever seen the amended complaint in this case?
A. No.
Q. Have you examined Mr. John Ruffino at any time?
A. I have not.
Q. Would it help you at all in forming any of your opinions in this case to examine Mr. Ruffino?
A. I don't believe it would affect my

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opinions that I'm presenting in this case, no.
Q. Have you ever asked for the opportunity to examine him?
A. No.
Q. Have you ever spoken with Mr. Ruffino?
A. No.
Q. Have you ever asked for the opportunity to do so?
A. No.
Q. During the course of the discovery process in this case, I've got a copy of the dash cam, which as you know from watching TV is the video footage from a police car when there's a stop.
A. Yes.
Q. Have you ever looked at the dash cam video on Mr. Ruffino?
A. I reviewed it briefly, yes.
Q. When?
A. I believe in the last month.
Q. How did you get a hold of it?
A. I believe it was sent to me through an e-mail link in that chain of e-mails.
Q. Now, in the letter which we made Exhibit 3, like some physicians, you use a system for determining how much time you spend on a case by

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writing on some document in the case. Exhibit 3 in the upper right-hand side reflects time spent on the case. May not be the only time record you have, but I don't see any record at all reflecting a review of the dash cam. Is there a record reflecting when you looked at the dash cam?
A. In terms of the time?
Q. Yes, the date and the amount of time you spent.
A. I don't believe so, no. That was subsequent to these records being completed.
Q. Did you ever get a copy of Mr. Ruffino's deposition?
A. I did. That's included in the folder here.
Q. Did you read it?
A. Yes, I did.
Q. Did you notice that I asked him in his deposition whether he was smoking when he was waiting for the EMTs to come and while he was talking to the police?
A. I remember smoking as something he did, but I don't remember that question, no.
Q. Yeah. Well, I asked him specifically if he was smoking while he was waiting for the EMTs to

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come and while he was with the police, and he denied it unequivocally at Page 61, Lines 24; Page 62, Lines 9. You're free to confirm it, if you want to, in the deposition. But you know from looking at the dash cam that's not true, don't you?
A. I don't -- didn't see that in the dash cam so I didn't --
Q. You didn't see him smoking on the dash cam?
A. No.
Q. Did you look at the dash cam very carefully?
A. Not every moment of it, no. I just --
Q. Well, how long was it?
A. I believe it was almost 45 minutes long.
Q. Are you familiar with a publication entitled Thrombosis Research?
A. I've heard of it, yes.
Q. Is it a reliable publication in the field of medicine? (Hands document to witness.)
A. Can you clarify what you mean by reliable?
Q. Well, I'll give you my definition of authoritative or reliable, and that is a publication that is first and foremost peer-reviewed, makes it a point of publishing information that has been verified

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or confirmed to be accurate, and generally follows accepted scientific principles.

Something -- it's not just an ad hoc case report by somebody in a community, but in fact attempts to compile research, reflects its methods, justifies the conclusions, and then submits the proposed article to a peer review board, much like the American -- the neurology publication. Something like that.

A. I --

Q. With that background, is Thrombosis Research a reliable publication?

A. From what I can tell, yes.

Q. Before today, had you ever seen the article "Acute Cigarette Smoke Exposure Reduces Clot Lysis -- Association Between Altered Fibrin Architecture and the Response to tPA"?

A. I had not, no.

Q. Do you agree with the concept published by the article, that clots generated after smoking are resistant to thrombolysis?

A. I mean, I'd have to read it in more detail. I certainly would not be able to take any definitive statements about that without reading it and also knowing what other literature is out there.

Q. So you haven't looked at it before?

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A. No.

Q. You don't know from your actual experience whether that concept is true or false; right?

A. I mean, my sense of what I know before is that regardless of risk factors, tPA has efficacy. That's my understanding of the literature.

Q. My question to you is very specific. Do you know whether smoking reduces the effectiveness of tPA in an existing clot? It's a yes or no.

A. That's not something that I'm aware of, no.

Q. Okay. Well, we'll make a copy of that Exhibit 4, please. Just hand it to him.

A. Okay.

Q. You're free to look at it later if you'd like to.

[Exhibit 4 marked for identification.]

Q. When I was reading the Wesley deposition, you said that your charges at that time were $400 an hour for medical record review, $500 for deposition testimony. Are those charges higher now?

A. I don't believe my charges have changed, but I do have --

Q. Would you look and see? I asked you to give us your fee schedule.

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A. $450 an hour for review and $500 for deposition.

Q. So the review fees have gone up by $50 an hour; correct?

A. Not in my recollection. That's the same schedule that I've always had, but I can't -- I don't have the deposition prior -- maybe that was an error that I stated before. I'm not sure.

Q. Perhaps. We'll make this Exhibit 5, which is his fee schedule.

[Exhibit 5 marked for identification.]

Q. According to your testimony in the McGill case, you made $7,440 doing this kind of work in the calendar year 2015 and then almost double that, made $12,285, in 2016 doing this. We've now completed 2017. How much money did you make doing medical/legal reviews in calendar year 2017?

A. I don't have the exact amount, but having done my taxes I know it was less than $10,000 this past year.

Q. You have to report that on a Schedule C, don't you?

A. That's correct.

Q. And what was your Schedule C number?

A. My Schedule C for all business-related

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work was approximately $40,000, but --

Q. And 10 grand of it was legal-related work?

A. Exactly. Maybe less so, because I know 30-something was for other consulting I do not to do with legal.

Q. Now, in one of the cases -- let's see. Yes. In McGill, you testified that you had to sign an agreement with Washington University that dealt with medical/legal consulting. Is that correct?

A. I believe -- if I recall correctly, I was stating that there's a general ethics or agreement that you sign that might include some subsection that deals with that kind of thing.

Q. Are there any provisos imposed by Washington University in St. Louis that control any element of your consulting? And I'll just throw out some ideas -- how much you can do, the subjects you can consult in, what you can charge -- anything like that?

A. I'd have to confirm the exact details, but I don't believe there's a limit on the amount of consulting within reason or an exact charge except within reasonable limits or some such terminology, but it's fairly unconstrained within some gross constraints.

Q. Do you have to get the permission of the

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chair of your department to take on any cases?
A. No.
Q. You know that that's done at some schools?
A. I'm not aware of that, no.
Q. Is it correct that you spend about 25 to 33 percent of your time in clinical activities?
A. That's correct.
Q. And you spend one week per month in the neuro ICU; correct?
A. That's correct.
Q. That is correct?
A. Yes.
Q. How do you spend the other three-quarters to 66 percent of your time as a physician?
A. Performing research and teaching.
Q. Now, in the real world today, research also requires funding, doesn't it?
A. That's correct.
Q. Does your CV reflect your funded research projects?
A. It should, yes.
Q. Can we get that out and identify the funded research projects just by page and line number, please?
A. On Page 8, there is a section, current

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research support, that lists the main one or two sources of current research funding.
Q. Okay. And there's one at the top, governmental. The title is genetics and prediction of cerebral addendum after hemispheric stroke?
A. That's correct.
Q. And you are one of the researchers but not the principle investigator?
A. No, I am the principle investigator.
Q. Okay. All right. What's the funding? How much?
A. The funding is primarily for my salary -- 75 percent of my salary, and then some additional amount for research expenditures, but only a small amount.
Q. Well, what is your funding for this particular project? It's not listed.
A. Over five years it might be in the $700,000 range.
Q. And then onto the non-governmental clinical trials. You've got a title naloxone for optimization for hypoxemia in lung donors study. You are the principle investigator for that?
A. Yes.
Q. And what's the amount of that study and

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who's funding it?
A. There's no funding for that. That's simply a trial that I'm performing. That's what I was in France presenting the results of. But I don't receive any money from that. It's funded -- the trial itself is funded administratively by an organization, but I don't receive any money from that.
Q. Well, while we're at it let's make his CV the next exhibit, which would be --
THE REPORTER: 6.
Q. (By Mr. Gideon) 6? Will you pass that to him, please?
[Exhibit 6 marked for identification.]
Q. None of your current or former research deals with efficacy of tPA, does it?
A. No, I don't believe my research is directly on that area, no.
Q. None of your current or former research deals with efficacy of any other thrombolytic agent, whether it's streptokinase or urokinase --
A. No.
Q. -- or some other substance; correct?
A. No.
Q. That is correct? You're --
A. That is correct that it doesn't.

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Q. None of your funded research deals with intravenous or intraarterial use of thrombolytics; correct?
A. Correct.
Q. And none of your current or former research deals with instrumentation -- endovascular instrumentation to break up, remove, or retrieve a clot or thrombus; correct?
A. Correct.
Q. Now, when is the last time that you actually performed an embolectomy -- an endovascular embolectomy?
A. I'm not a physician. I'm not in that line of work that performs the embolectomy. That's usually a radiology division who performs that.
Q. So the answer to the question then is never; right?
A. That's correct.
Q. Even in training?
A. Correct.
Q. Now, if I remember your CV correctly, you went through a neurology residency, and then you had a fellowship in neurointensive care and something else, didn't you?
A. No, my fellowship was in neurointensive

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care only.
Q. Throughout all of your neurology residency, throughout all of your fellowship and your entire career as a fully-minted attending physician, you've never once performed an embolectomy; right?
A. Not myself, no.
Q. How close to the table have you been when somebody else is performing an embolectomy?
A. I mean, I've certainly been present during a lot of endovascular procedures as the neurologist involved in a patient's care.
Q. Right.
A. But not doing the procedure. But very close.
Q. Not holding the catheter?
A. No.
Q. You've never held the guide wire?
A. I mean, I've done -- I've held a guide wire for angiography in the brain but not necessarily this procedure.
Q. Now, have you ever performed what used to be much more common, and that's intraarterial use of tPA or another thrombolytic? Have you ever done that?
A. Again, I haven't done it myself but I've been involved in many cases when that was more common.

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Q. Remember my question, my point at the beginning, just answer it directly.
A. Sure.
Q. All this deals with you, not if you know somebody who's done it, not if you've seen somebody do it.
A. Yeah.
Q. Have you ever been the person who inserted the catheter and released some thrombolytic drug in an intraarterial fashion?
A. No.
Q. Did StoneCrest, my client, have a neuro ICU?
A. Not to my knowledge.
Q. Was it a rural hospital?
A. It's not to my knowledge a rural hospital.
Q. What is it, then? Is it a community hospital, or is it a tertiary facility?
A. I mean, from what I can tell it's a community hospital with some specialists but not tertiary level of expertise.
Q. Tertiary level would be something like Washington University, Barnes-Jewish Hospital; correct?
A. Correct.
Q. Or Vanderbilt or Duke University Medical

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Center; correct?
A. Correct.
Q. How would you get -- if you flew into Nashville, how would you get to StoneCrest Medical Center?
A. I think you'd have to take the highway out of the city a little bit to the west, I believe.
Q. And how far west would you go before you got to StoneCrest?
A. I don't know it's exact distance, but I believe it's within 20 miles, but not exactly sure.
Q. 20 miles west? And then once you got to StoneCrest, what would you find in terms of specialists? You said they had some specialists.
A. Right.
Q. Which ones do they have?
A. I mean --
Q. Do they have, for example, orthopedic spine?
A. That I'm not sure. I know for example in this case they have a neurologist.
Q. Yes.
A. That's the only specialist that I'm aware of that's relevant to this case.
Q. Any other specialists that you're familiar

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with?
A. I didn't come across in my review here, no.
Q. The neurologist who was involved in the care of Mr. Ruffino, his last name is Chitturi -- Seresh Chitturi -- did you get a copy of his affidavit in these materials?
A. I believe I did see something from him.
Q. Would you please locate that affidavit? Here's some other materials.
A. Yeah.
Q. And right now, Dr. Dhar, all I'm trying to confirm is that you've got a copy of his affidavit. It was available to you for your review.
A. Looks this is it here -- affidavit of Seresh Chitturi.
Q. Yes. You did get it. When did you get this set of materials that's clipped together, which appears to be -- and I haven't looked at it carefully -- but it appears to be the disclosures we made of a series of physicians and the opinions they would express in this case. When did you receive that?
A. It would be in the e-mails, but I believe it was in March of this year.
Q. And I'll bet you recognized one of those

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physicians, didn't you?
A. I did come across one physician I recognized, yes.
Q. Yes. Dr. Zazulia?
A. That's correct.
Q. Now, how long have you known her?
A. Probably since I've been here, so at least 10 years.
Q. Right. Right. Is she the chief of vascular neurology here?
A. No.
Q. What's her position?
A. I'm not aware if she has any position within the neurology department.
Q. What's her role with respect to the stroke program at Washington University in St. Louis?
A. I mean, she's one of the stroke neurologists.
Q. She is?
A. Yes.
Q. Are you one of the stroke neurologists?
A. I'm one of the critical care neurologists.
Q. I didn't ask about critical care.
A. Sure.
Q. I asked about stroke. Are you one of the

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stroke neurologists?
A. No, I'm not in the stroke division, no.
Q. The answer then is a simple no; right?
A. No. Yes.
Q. Who else besides Dr. Zazulia is one of the stroke neurologists?
A. There's at least four or five others, I believe.
Q. When you saw that she was involved in this case too, did you ask the people that hired you if it was okay if you discussed your findings with Dr. Zazulia?
A. No.
Q. Have you discussed your findings with Dr. Zazulia?
A. No.
Q. Were you surprised that Dr. Zazulia disagreed with you?
A. I don't even remember her saying that specifically, so I didn't -- it didn't come across my mind to be surprised at that, no.
Q. Who decides whether somebody is a stroke neurologist here or isn't? How is the neurology program organized here at Washington University?
A. It's divided into divisions, and you're

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simply hired and placed within a division that best suits your practice.
Q. And your skills and your background?
A. Sometimes. Not always.
Q. Have you always been in the neuro ICU --
A. Yes.
Q. -- division?
A. Yes.
Q. Have you ever been in the stroke division?
A. No.
Q. Is there a formal stroke division?
A. Stroke or cerebral vascular -- I forget the title, but --
Q. Vascular neurology?
A. Vascular neurology.
Q. Have you ever been in the vascular neurology division?
A. No.
Q. Are you a member of the American Academy of Neurology?
A. No, no longer.
Q. Have you ever been?
A. Yes, in the past.
Q. When?
A. Maybe in 2005, 2006.

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Q. Why did you stop being a member of the American Academy of Neurology?
A. Just cost and utility.
Q. You didn't think you had gotten much from it?
A. That's correct.
Q. Are you familiar with whether they have guidelines that govern so-called expert testimony?
A. I'm not aware, but it wouldn't surprise me.
Q. Do you agree that for you and the opinion is -- in the position of an opinion witness, somebody expressing opinions about other cases, other people -- that it's reasonable to expect you to become familiar with the practice setting of the occurrence? Do you think that's reasonable?
A. Yeah, that seems reasonable.
Q. Have you ever practiced, since you finished your fellowship, in a practice setting like StoneCrest Hospital in Smyrna, Tennessee?
A. I mean, there's certainly overlap between the two. There are some differences and similarities in the practice setting.
Q. No, I asked if you have ever actually practiced in a setting similar to StoneCrest. That's

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the question.
A. I mean, yeah, I mean, there are similarities.
Q. Where? Where have you practiced, other than Washington University Medical Center --
A. Well, I think they are --
Q. -- in St. Louis, Missouri?
A. That's where I practice, which has similarities to StoneCrest in this regard.
Q. Well, we'll talk about similarities in a moment, but I want to know if you've ever been the neurologist at a hospital like StoneCrest in a rural community, whether it's Kansas, or Missouri, or Illinois. You've been the on-duty neurologist like Dr. Chitturi at a hospital like StoneCrest as your job, ever?
A. Outside of what I've done here, no.
Q. Is it correct that we would call what you do here tertiary care?
A. Certainly that's a big part of it.
Q. All right. Do you agree with the requirement that when you're expressing opinions about causation, standards of care, whatever it may be, that it's reasonable to expect you to identify whether those opinions are based on personal experience,

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guidelines -- published guidelines -- or prevailing expert opinion? Don't you think that's a reasonable request?
A. Yes.
Q. Let's talk for just a moment about prevailing expert opinion. Have you vetted a single opinion that you're going to express in this case with any other physician?
A. Not specific to this case, no.
Q. All right. I looked through your materials quickly as we began the deposition. I did not see any published guidelines included in the materials. Have you referred to any published guidelines as you formed your opinions in this case?
A. Not for this case, no.
Q. Have you formed your opinion in this case based on any published article?
A. No.
Q. You would agree, wouldn't you, Dr. Dhar, that any opinion you express in this case at minimum has to be scientifically valid?
A. Yes.
Q. That's your responsibility; correct?
A. Yes.
Q. Do you also agree that one of your ethical

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responsibilities as a reviewer in this case, as an honest broker, is that you've got to be prepared to tell the lawyer that hires you the good and bad about that lawyer's case?
A. Sure.
Q. You recognize it would be entirely inappropriate for you to be an advocate for one side in the litigation; correct?
A. Yes.
Q. Are you a member of the American Medical Association?
A. I am not.
Q. Not that organization either?
A. No.
Q. Are you a member of the American Heart Association?
A. Yes.
Q. And the American Stroke Association, the ASA?
A. Yes, that's part of the American Heart Association.
Q. I thought they were separate and apart, but they're not?
A. Huh-uh. They're the same.
Q. So you're a member of the AHA/ASA?

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A. Exactly.
Q. Does that organization, the AHA/ASA, publish guidelines?
A. Yes.
Q. And in fact, one of the things they published is the 2015 American Heart Association/American Stroke Association focused update of the 2013 guidelines for the early management of patients with acute ischemic stroke regarding endovascular treatment; correct? (Hands document to witness.)
A. Okay. Yes.
Q. Tell me how long ago you first looked at the set of guidelines that are in front of you right now.
A. I believe I looked at them when they first were released in 2015. I don't believe I've looked at them since then, but certainly at that time.
Q. You have never looked at the guidelines in front of you in connection with your engagement in this case, have you?
A. No.
Q. Don't you think you should have?
A. I mean -- no.
Q. No? All right. We'll make that Exhibit

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6, please.
THE REPORTER: 7.
MR. GIDEON: 7.
[Exhibit 7 marked for identification.]
Q. (By Mr. Gideon) William Powers is the principle author of the guideline revision in 2015; correct?
A. Correct.
Q. Isn't he regarded as one of the consensus stars in the field of care of patients with stroke?
A. Yes, I would agree.
Q. Longtime chair of the vascular neurology section at UNC; correct?
A. Of neurology, I believe, not vascular neurology.
Q. But his emphasis has been in the care and treatment of patients with stroke, hasn't it?
A. Yes.
Q. He's actually the person who trained Dr. Zazulia, isn't he?
A. That's correct.
Q. Yes. Would you agree with me, using the definition I gave you earlier of authoritative and reliable, that the 2015 American Heart Association/American Stroke Association focused update

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of the 2013 guidelines for the early management of patients with acute ischemic stroke regarding endovascular treatment is in fact authoritative and reliable for the purposes of this case?
A. I don't know if I could say they were entirely authoritative for this case. I think they're generally reasonable guidelines.
Q. Okay. Same thing would hold true. You'll have to look at specific sections then to tell me whether you agree with specific sections; correct?
A. Yes, I --
Q. Just like our discussion about the thrombosis article and smoking?
A. Exactly. How they would relate to this case would depend.
Q. Yes. All right. Now, have you ever worked as a registered nurse in the emergency room anywhere?
A. No.
Q. Have you ever been licensed as an RN in Tennessee or any other state?
A. No.
Q. As you reviewed this case, did you find any order given by an advanced practice person or by a doctor that the nursing staff at StoneCrest did not

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comply with?
A. I'm not aware of any time that I found that, no.
Q. So the answer is what? They did comply with all the orders given or they didn't?
A. They did, as far as I -- in my review they did, yes.
Q. Well, then consistent with your testimony in the McGill case, you would not be critical of the nurses here because they, quote, followed the orders they were given, end quote? You agree with that?
A. Yes.
Q. During your career here -- I don't suspect that this is the case -- but have you ever worked as a moonlighting ER physician at any of the smaller hospitals?
A. No.
Q. And your training, neurology residency, and fellowship both in Canada; correct?
A. Residency in Canada and fellowship here.
Q. Fellowship here?
A. Yes.
Q. Residency in Canada, you didn't moonlight at any community hospitals like StoneCrest, did you?
A. Not -- I mean, I worked in those hospitals

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as part of my training, but not as a moonlighter.
Q. But those are clearly not contiguous to Tennessee? Those were in Canada; correct?
A. They may be similar in many ways, but yes, not in Tennessee.
Q. Now, here at this tertiary center, do they follow the traditional approach, and that is, you have to apply for staff privileges at a hospital every two years? Do you have to do that here?
A. I believe there's some re-credentialing every one or two years here, yes.
Q. Yeah. Can't be more than every two; otherwise you'd be not compliant with the joint commission. You know that, don't you?
A. Every year or two years, yes.
Q. And you also have to make a specific request for the kinds of thing you can do; right?
A. Yes, I believe so.
Q. Have you in all the years you've been here ever had privileges to perform an endovascular embolectomy?
A. No.
Q. Have you ever applied for privileges to perform any form of intraarterial revascularization?
A. No.

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Q. Do you have the privileges to order tPA in the neuro ICU?
A. Yes.
Q. When's the last time you ordered tPA in the neuro ICU?
A. It's probably been a few years since that's happened.
Q. How many is a few years? As I get older, a few years gets longer and longer. How many?
A. I don't have an exact recollection, but certainly not in the last two years, maybe, so --
Q. Why not?
A. We haven't had that many cases of strokes that occur in the neuro ICU.
Q. So that I am clear, in the time that you have been here at Washington University in St. Louis as a physician -- fully-trained physician, after your fellowship was completed -- have you consulted and been on the consultation panel to the emergency room here?
A. I mean, certainly we can be consulted at the emergency room, yes. It depends -- if we're required.
Q. Well, here's what I'm getting at. You may know this, you may not. But in a facility like StoneCrest, they will have a call list --

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A. Uh-huh.
Q. -- of specialists that the emergency room can call. They'll have an ophthalmologist who's on call. They'll have an orthopedic surgeon who's on call. If they have a neurologist with staff privileges, they'll have a neurologist on call. Have you been on the call schedule to the ER here at Washington University?
A. Yeah, I believe they have two schedules for neurologists, one for stroke and one for non-stroke.
Q. And you're on the non-stroke?
A. No.
Q. You're on the stroke call schedule?
A. We're more affiliated with the stroke, but myself, I have not recently been on the stroke schedule because I mainly do ICU now.
Q. How long has that been the case that you have not even been on the ER stroke call list? How many years?
A. Probably at least 10 years.
Q. That's pretty much the whole time you've been here; right?
A. Since I started maybe focusing on the ICU side of things.

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Q. Do you have your report in front of you, Doctor?
A. Yes.
Q. I notice there's some highlighting. When did you last look at it?
A. This was highlighted yesterday. I printed --
Q. Are you familiar with it?
A. Yes.
Q. Will you find any reference in the report you prepared -- well, let me take that back. Do you find any reference in the report you signed that says -- that uses the phrase "standard of care" or "acceptable standard of professional practice" -- either one of those phrases?
A. I don't believe I see those words or terminology in this report, no.
Q. Is there another report that I should be looking at?
A. This is the only report I created in this case.
Q. Well, you didn't really create the report? The e-mails say the report was sent to you and then you had to add some things at the end. Isn't that right?
MR. CUMMINGS: Object to the form.

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A. No.
MR. CUMMINGS: Go ahead and answer.
A. That's incorrect.
Q. (By Mr. Gideon) Well, let's look.
A. The e-mail was the opposite.
Q. Well, let's look.
A. Sure.
Q. I looked at it just before we started the deposition, and I put some of these pieces of paper on it. Let's look. You might be right. Here's the e-mail I was thinking of, and you can tell me if there are any others. January 30th, 2018. And you're free to read it in its entirety before you answer the question. And if you can find any others that deal with the genesis of this report, please do.
A. Okay. Sorry. And what was your --
Q. All right.
A. Yeah. Go ahead.
Q. Is the e-mail of January 30th, 2018, in fact as I suggested, one that deals with the content of the report that's right by your right hand?
A. Yes, there's a few e-mails, but that's probably the longest one that deals with it.
Q. Correct.
A. All on that same day.

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Q. And doesn't the e-mail of January 30th, 2018, reflect that Mr. Cummings had added information to your report?
A. I think it says that a sentence was added at the end or a section was added to the end to meet certain criteria.
Q. Correct. So why don't you just read for us what was added not by you but by the lawyer that retained you? Just read that section to us.
A. "The revisions are largely to add the categories of information at the end of the document. Throughout the document, please fill in the blanks to provide the corresponding information. The opinions were obviously left the same."
Q. Who had prepared the initial opinions?
A. I did.
Q. Good. Where is the e-mail from you to them saying, "Here's my original set of opinions"?
A. I believe here it says, "Would you like me to forward you my draft opinions? I reviewed" -- that's on the 30th.
Q. January 30th, 2018?
A. January 30th. In that morning. I reviewed the depositions and notes, so that's where I was asking to -- if -- I created that report and should

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I send that on, and then that response was in response to that report being sent out.
Q. Okay. So is January 30th, then, the last time anyone was adding to, deleting from, or changing the report?
A. Let me confirm that, but that was when that was done. Let me see. That was the last time changes were made, but I do see the date is February the 5th, so I imagine by the time I had had a chance to review it and respond and made sure everything was reflected, it was still a few more days from the 30th.
Q. That's fine. We will make those two e-mails of January 30th, 2018, from him and then to him, the next exhibits, please.
A. I put those --
Q. If you'd hand those to the court reporter.
A. Yeah. Those pages.
[Exhibit 8 marked for identification.]
[Exhibit 9 marked for identification.]
Q. And then as Exhibit 10, we will make the report that is in front of Dr. Dhar right now that has the highlighting on it --
A. Okay.
Q. -- that he says is the final work that was completed February 5th, 2018.

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A. Right. And I do have the original copy that I signed. This was the reprint that I printed yesterday.
Q. We'll look at that in a minute.
A. Okay.
[Exhibit 10 marked for identification.]
Q. Now, by February 5th, 2018, you had testified in the McGill case, you had testified in the Wesley versus Northwest Regional Medical Center case. That was the one in Mississippi?
A. That's correct.
Q. McGill was one I think in around Memphis, wasn't it?
A. Memphis, Tennessee.
Q. Yeah. And you had reviewed four to six cases --
A. That sounds about right.
Q. -- by that time?
A. Yes.
Q. Then you get this case, the Ruffino case. You're testifying in it, and you knew you were going to testify in it when you signed that report, didn't you?
A. I didn't know what would be the next step.
Q. Why did you not identify that you were expressing any opinions on standards of care or

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standards of acceptable professional practice in that report?
A. I'm not sure I understand the question.
Q. Well, you know that a health care provider in Missouri, in Kansas, in Tennessee -- their conduct is evaluated based on whether they comply or don't comply with accepted standards of professional practice? You know that, don't you?
A. Seems reasonable.
Q. Yeah. You know that here in Missouri, the fact that an outcome is not good in the neuro ICU does not mean you've done something wrong; correct?
A. Yes.
Q. The question is whether you and your fellows have complied with accepted standards of care in the neuro ICU in a similar set of circumstances with a similar patient? You understand that, don't you?
A. Yes.
Q. Are you telling me then in this case that you are not going to express any opinions about whether any of the health care providers complied or did not comply with accepted standards of professional practice or the standard of care?
A. No, I believe I'm giving my opinions on that. I may not have used that terminology, I guess.

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I made my report more from the medical perspective, and then if there was input in technology, I guess that's the feedback that I got from Mr. Cummings and then made sure that things were expressed in legal terms. I'm not still an expert in how to express those things -- my medical opinions in a legal way.

Q. Well, you've conceded that your report, which had been vetted by Mr. Cummings and additions had been made by the 30th of January, does not use the phrase "standard of care" or "standard of acceptable professional practice" a single time; right?

A. I don't believe I used those words, no.

Q. But you're telling me today that you do intend to express some opinions about standards of care regarding somebody; right?

A. Yes.

Q. Who?

A. Dr. Archer.

Q. Dr. Archer the ER physician?

A. That's correct.

Q. Anybody else?

A. I'm --

Q. The question is simple. Anybody else other than Dr. Archer?

A. I don't believe there's any other

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physicians that I refer to in terms of issues with the standard of care that were --

Q. I'll ask the question again. Anybody else other than Dr. Archer?

A. I made opinions on both Dr. Archer and Dr. Chitturi, but the primary issue was the communication of Dr. Archer.

Q. I'll ask it one more time. Are you expressing any standard of care opinions on anybody other than Clark Archer, M.D.? That's a yes or a no.

A. Well, I guess I do include Dr. Chitturi in there then as well.

Q. So you're expressing opinions critical of Seresh Chitturi?

A. I believe that's included in my opinion, yes.

Q. Okay. I don't see anything in that report -- and I promise you I've looked at it carefully over and over and over again. I don't see a word of criticism of Dr. Chitturi in there. Will you show me the language that reflects to any fair-minded person that you are critical of the performance of Dr. Chitturi? Just find the section on Exhibit 10, and then we'll look at it together.

A. I believe the only section that would

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answer your question is just the statement where I say, "Dr. Chitturi did not seem to be aware that neurological examinations by the nurse had found him neurologically normal from the time of triage through at least 12:00 that day."

Q. Anything else?

A. I believe that's my -- the one criticism of that practice that I found.

Q. Oh. And you agree that with respect to Dr. Chitturi, there is no statement by you that Dr. Chitturi deviated, failed to comply with accepted standards of practice for a neurologist or standards of care? Do you agree with that?

A. Yes.

Q. All right. Have you done any work to try and determine what the actual approved labeling for tPA is?

A. Could you clarify what you mean by work?

Q. Yes. Have you taken the time to look and see what the FDA has permitted the manufacturer of alteplase to label its product?

A. I believe I am aware of the FDA labeling, yes.

Q. FDA labeling for tPA, brand name alteplase, limits its use to three hours after the

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patient was last normal; isn't that correct?

A. Yes.

Q. The FDA actually was presented with a request by the manufacturer of tPA to extend its labeled use to 4.5 hours; correct?

A. I can't -- I mean, I can't comment exactly on that.

Q. Don't you think that somebody who's offering opinions in this field should know the answer to that question?

A. No.

Q. All right. You don't know? Do you know if the FDA rejected the request by the manufacturer of tPA to extend labeled use for -- from three up to four-and-a-half hours?

A. No, I specifically -- I don't know that specifically, no.

Q. Is it your opinion that the administration of the appropriate dose -- I don't want to argue with you about volume; okay?

A. Okay.

Q. There is a fairly standardized volume of tPA that's utilized across the country, isn't there?

A. Yes.

Q. And what's that volume?

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A. .9 milliliters per kilogram -- milligrams per kilogram -- up to a maximum dose.
Q. In an intravenous administration?
A. In an intravenous way, yes.
Q. Yeah. Okay. Using that dosing, is it your opinion that that dose of tPA in this case would have revascularized Mr. Ruffino's middle cerebral artery territory?
A. My opinion is that more likely than not, it would have facilitated the revascularization, yes.
Q. Alone? tPA alone? That -- you're answering a question I didn't ask. It's real simple here. The question is, would tPA alone in Mr. Ruffino have revascularized his left middle cerebral artery? Yes or no?
A. Well, nothing in medicine is yes or no so I can't answer that question definitively because we don't know the answer. I can only give my -- the probabilities that more likely than not it would have.
Q. Okay. You agree with me that more likely than not then means that something has to be more than 50 percent probable; correct?
A. Yes.
Q. And are you telling -- are you testifying under oath that administration of tPA alone in this

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case would have more probably than not revascularized Mr. Ruffino's left middle cerebral artery distribution?
A. To be specific, yes, I'm saying that it would have more likely than not improved the perfusion beyond the blockage.
Q. That's not my question. Don't answer questions I haven't asked. The question focuses on revascularization.
A. Could you clarify what you mean by revascularization?
Q. Yes. Would it have lysed whatever blockage existed such that the flow, the perfusion of blood, would have revascularized the area served by his left MCA?
A. Yes.
Q. So I want to make sure I have a concrete answer to a concrete question.
A. Sure.
Q. Are you telling me that in your carefully-considered opinion, utilization of the standard dose of intravenous tPA would have more probably than not revascularized Mr. Ruffino's left MCA if given at any time on February 17th, 2016?
A. Could you clarify -- any time? I just don't want to answer the wrong question. You're saying

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at any time when he presented with a stroke, or are you saying anytime later?
Q. At the time that he presented at StoneCrest.
A. Yes. If --
Q. You and I agree -- and we'll do the question again so we have all the time constraints nailed down.
A. Okay.
Q. We agree he presented at 9:48 at the hospital; correct?
A. Correct.
Q. We agree that at 12:20 Clark Archer saw him? You remember that; correct?
A. Sometime between 12:00 and noon -- 1:00, yes.
Q. You agree that at about 12:54, Clark Archer called a code stroke?
A. Yes.
Q. You do remember that?
A. Yes.
Q. You recall that Dr. Chitturi said in his affidavit that he consulted in the care of Mr. Ruffino at approximately 12:54 or 12:56; correct?
A. That's -- yes, that seems correct.

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Q. In that time frame?
A. Yes.
Q. Let's give Dr. Chitturi 25 or 30 minutes to consider what to do and do it. If at any time between 9:48 on the morning of February 17th, 2016, and 2:00, is it the opinion of Dr. Dhar that tPA alone, if given intravenously, would have revascularized the patient's left MCA territory more probably than not?
A. Yes.
Q. Now, you have an obligation, don't you, to make sure that the opinions that you express are consistent with research; right?
A. Yes.
Q. You have an opinion -- you have a responsibility to make sure your opinions are consistent with guidelines, published data?
A. That's part of it, yes.
Q. Right. Tell me what research, if any, you have ever looked at to attempt to verify the opinion you just gave.
A. I mean, in my accumulation of reading, there's literature that shows that tPA is more likely than not able to revascularize clots in the MCA based on angiographic studies, based on outcome studies.
Q. Well, I asked you not -- just to tell me

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what you think these unspecified studies have said. I've asked you to tell me what they are. I've read a lot of them. What are the names, the articles, the titles of -- I'll give you more specifically -- tell me the name of just two articles, publications, or guidelines that support what you just said. Just give me two.

A. Yeah, I don't think I would be able to just list off the name of the articles. Those are kind of things that are in the summary of expert -- kind of expertise that I've accumulated. I don't have the exact article. I could certainly try to locate those.

Q. Good. Well, I'll give you that opportunity after today's deposition if you'll get it done in seven days. Okay?

A. Okay.

Q. We agree, don't we -- we talked about time. We also agree that Mr. Ruffino had a large vessel occlusion on the 17th of February 2016; correct?

A. That's my opinion, that yes, it seems like he did.

Q. All right. Let's take a look at the consensus guidelines that you told us were reliable and authoritative at Page 3029. You may need to get them back from the court reporter. This is the publication

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that came out in 2015, and it's Page 3029.

A. Okay.

Q. Dealing specifically with the issue of more probable than not. Here's the section you need to read, which says what you just told us is absolutely wrong. (Indicating document.) Let me read it to you.

A. Go ahead.

Q. I'll read it to you. I want to make sure you follow along. Quote, however, because recanalization occurs in only a minority of patients with large vessel occlusion receiving intravenous tPA alone -- example, 37.3 percent in the escape trial, comma. You see that?

A. Yes.

Q. That's absolutely inconsistent with what you just told us, isn't it?

A. No.

Q. No? Did you look at the trials? Have you looked at, for example -- and I'll take you through. Did you look at the IMS III trial, the Interventional Management of Stroke Trial Three?

A. I mean, I'm aware of all those trials, yes.

Q. Have you looked at the publication, Doctor, that discusses that trial?

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A. Not in preparation for this, no.

Q. Have you looked at the MR and recanalization of stroke clots using embolectomy, widely known as Mr. Rescue?

A. I mean, again, I'm aware of the trial but haven't read it for this case.

Q. Have you looked at the intraarterial versus systemic thrombolysis for acute ischemic stroke known as synthesis?

A. That one I'm not aware of, no.

Q. You're not even aware of the study, are you?

A. No, I'm not aware of that study.

Q. Have you looked at the solitaire FR with intention for thrombectomy as primary endovascular treatment of acute ischemic stroke, fortunately known as swift prime?

A. Yes.

Q. Have you read that study?

A. In the past, yes.

Q. And have you looked at extending the full-time for thrombolysis in emergency neurological deficits intraarterial, known as EXTEND-1A? Have you looked at those, that article?

A. Yes, I believe I'm aware of that.

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Q. Isn't it true that any one of the publications that I just described reflected the use of tPA alone produced recanalization in less than 50 percent of the patients -- every single study?

A. I'm talking about this case, not what the studies showed.

Q. Let's talk about the studies because there's no study on this case. Let's take the literature and talk about it for a moment. Isn't it correct that every published study that has compared tPA alone with embolectomy has confirmed that tPA alone dealing with large vessel occlusion leads to recanalization in less than 50 percent of the patients? Isn't that true?

A. Yes, but that doesn't apply to this case.

Q. Why?

A. Okay.

Q. Tell me why the literature, all the literature --

A. Yeah.

Q. -- doesn't apply to this case.

A. Because the literature and those trials includes a wide variety of patients, occlusions, and severities. I'm dealing with the likelihood of reperfusion, recanalization in this case, which is a

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specific subset of maybe the kinds of patients that were included in those studies.

So you cannot extrapolate a study that included many different kinds of large vessel occlusions, including much more large and proximal conclusions, to this case which was a not a proximal large occlusion.

Q. What was it?

A. It was a smaller distal occlusion.

Q. Where?

A. In the end of the M1s, M2, which is a smaller blood vessel, and so that's why I cannot use the numbers that you provided and reject that data that you provided as a general statement to apply to this case.

Q. Well, then let's look at it from a different angle. Let's assume for a moment I was a cynic and I didn't believe you. What would I be able to look at to verify that what you have just told me has any weight at all, any scientific validity?

A. Yeah.

Q. Other than you just saying, "Trust me. I'm a smart guy."

A. Sure.

Q. What else is there?

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A. There are certainly scientific studies that show the likelihood of tPA's efficacy on clot is much greater with more distal occlusion and conversely much smaller with much more proximal and larger clots.

Q. Okay. Similarly, there is a lot of literature that deals with use of tPA specific to particular branches of the middle cerebral artery; correct?

A. There are some studies, yes.

Q. Yeah. In fact, Dr. Zazulia identified one for us that was attached to our answer. Did you see that?

A. I didn't look at the study, but I saw that a study was referenced, yes.

Q. Right. Did you look at the study that was referenced in our answer to the complaint?

A. No.

Q. Why not?

A. I just received these recently, so I haven't -- it wasn't something that -- I had already formed my opinion. I didn't change anything at that point.

Q. The study referenced in the answer that you are aware of says that 80 percent of the patients with an occlusion in M1 do not get recanalization with tPA alone. Are you aware of that?

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A. No, I'm not aware of that.

Q. That study says that 80 percent of the individuals with an occlusion in M2 do not get recanalization with tPA alone. Why would you not look at that data to make sure you were right?

A. Well, there was plenty of other data that doesn't show that.

Q. Okay, we'll see the data that supports your opinion within five days? Is that fair?

A. Seven days, yes.

Q. Seven days? Okay. I'll give you my business card so you can e-mail it to us. All right. Then embolectomy in this case was not necessary in order to change the outcome. If we accept what you say, tPA alone would have done the job more probably true than not?

MR. CUMMINGS: Object to the form.

Q. (By Mr. Gideon) Right?

A. No, that's not true.

Q. It's not? Why?

A. Well --

Q. Why isn't it true -- if tPA alone would have recanalized the vessel, why was embolectomy even something to consider?

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A. Because in medicine we don't deal with 50 percent of helping half of patients being enough. We're trying to make all our patients better, and tPA as you pointed out, is not 100 percent effective.

Q. No.

A. It doesn't recanalize all patients, and we don't know in every patient what the efficacy will be, so --

Q. Then --

A. We want to give each patient the best chance they can.

Q. Well, but we don't deal -- in the law, we don't deal with best chances, good chances, better chances. We deal with probabilities. Do you know that?

A. Yes.

Q. What I need to have from you before I leave today is direct, unqualified answers or admissions that you can't answer the question, which is also okay. First, you told me a few minutes ago that none of the studies that identified that you're familiar with could be applied to Mr. Ruffino -- you couldn't identify any studies that could be applied to Mr. Ruffino, but in your answer just a minute ago you said, "We never know with any given patient, so we try

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and give them the best chance."
How do you know then with Mr. Ruffino that you've never seen, you've never talked to, you've never touched, that tPA would have worked more probably true than not for him? How do you know that?
A. For that --
MR. CUMMINGS: Object to the form.
A. For that exact reason.
Q. (By Mr. Gideon) What?
A. We don't know 100 percent, but we know more likely than not.
Q. Why is it then that the -- Dr. William Powers, largely regarded as one of the leading lights in stroke care, would make this statement that it's just so completely uninformed in these guidelines, that quote, however, because recanalization occurs in only a minority of the patients with large vessel occlusion receiving intravenous tPA alone -- dot, dot, dot --
A. Yes.
Q. Why would he make something that is so absolutely wrong?
A. It's not absolutely wrong.
Q. No? Is it true? Is that statement true?
A. It's true in general, but not in this case.

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Q. And is the distinction in this case that even though you told me Mr. Ruffino had a large vessel occlusion -- you did testify to that?
A. Yes.
Q. What is the distinction between the language Dr. Powers uses and your characterization of Mr. Ruffino's case?
A. The type of large vessel occlusion.
Q. The type of large vessel occlusion? And what is his specific type of large vessel occlusion?
A. A smaller more distal occlusion.
Q. Smaller than what?
A. Than -- the larger vessel is more proximally.
Q. Well, proximal versus distal is location; it's not a size; right?
A. No, it is a size.
Q. Oh, it is?
A. The proximal vessels are bigger and the distal vessels are smaller.
Q. So the proximal vessels have a larger lumen?
A. Exactly.
Q. And therefore if it's occluded it's a larger thrombus?

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A. Exactly.
Q. Correct? Distal vessels, smaller lumen, and therefore if occluded, probably a smaller thrombus.
A. Almost definitely a smaller thrombus, in this case, based on this case -- which is why Dr. Powers is not incorrect in general, but he obviously doesn't know this case. This case likely, more likely than not, has a very small clot, and there's specific reasons in this case -- again, different from guidelines. My opinions are based on this case and the review of the case, not of the guidelines, which are general, that there are -- is likely a very small clot in this case, not even just general M2, but even smaller than the average M2 clot.
Q. All right. Well, let's talk about your view of the imaging. I know you haven't been through a neuroradiology fellowship, but looking at MRs and CT scans is part of what you do on a regular basis, isn't it?
A. Yes.
Q. Do you interpret CTAs, CT angiograms, on a regular basis?
A. Yeah.
Q. And do you also interpret CT perfusion scans on a regular basis?

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A. Less so, but somewhat.
Q. You --
A. Yeah.
Q. Even though you're not going to dictate the formal report --
A. Right.
Q. -- on an imaging study, you still rely upon your own assessment of these studies --
A. Sure. Yes.
Q. -- in delivering care?
A. Yes.
Q. Correct?
A. Yes.
Q. Where specifically was the occlusion in this specific patient, Mr. Ruffino, as shown by the CT angiogram run at StoneCrest at about 1:34 on the afternoon of February 17th, 2016?
A. Okay. The CTA that I reviewed was around 14:0-something, 14:04, but --
Q. It was ordered at 13-something.
A. Okay. So 2:00 or so. There was an occlusion either right at the end -- either the M1 or more likely at the start of the M2 branch, from my review.
Q. Be very careful. Which one was it in?

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Was it in M1 or in M2?
A. Sometimes on CT you can't tell because all the branches are not seen, so it's basically at the border of those two.
Q. Border of M1 and M2?
A. In my best opinion, yes.
Q. That's as close as you can get?
A. Based on my review, yes.
Q. And the size of the vessel that appeared to you to be occluded is what?
A. The size of the vessel?
Q. Uh-huh.
A. I mean, it would be in the millimeters.
Q. Right, but you're familiar with core labs, aren't you?
A. Core labs? No.
Q. You're not familiar with that? Do you know how to measure the probable lumen size of a vessel on a CTA?
A. Sure. Yes.
Q. Well, then -- did you do it?
A. No, I didn't do it in this case, no.
Q. Why not? In this specific case, why not?
A. Because I mean, the diameter is not -- great estimate of the clot size.

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Q. We just spent five minutes with you telling me that it was.
A. That's one of the factors. That wasn't the only factor. The bigger factor --
Q. Look, Doctor, you just spent a bunch of time telling me --
MR. CUMMINGS: Can he -- Mr. Gideon, can he finish that? I know you don't realize that he was still talking, but I think he was.
A. So it was a smaller vessel. That is one factor, but I didn't measure that smaller vessel, one, because we know it was a smaller vessel; it didn't help me to say is it two or three millimeters. But secondly, because we had the sense, as many experts have stated, that there may be an underlying MCA stenosis in this case, as being recognized on prior imaging.
Q. (By Mr. Gideon) Let's see. Let's go back to the report of Exhibit 10, dated February 5th, 2018, and let me just ask you. Did you set out to omit any of your opinions when you wrote this report -- to leave anything out?
A. No.
Q. Did you intend for this report to be a comprehensive statement of what your opinions would be?

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A. That was my intention, yes.
Q. By the time you wrote this report, February 5th, 2018, with the contributions from the lawyer that hired you that we've talked about already, did you even know that this man had undergone an MR angiogram on December 23, 2015?
A. Yes.
Q. Had you seen it by that time?
A. I had only seen the report by that time.
Q. But you had not seen the study itself?
A. Not at that time, no.
Q. You have now seen the study, haven't you?
A. That's correct.
Q. And do your opinions about the December 23, 2015, MRA differ in any way from the report on that MRA?
A. Well, it's not my intention to provide any opinions on that MRI. I wasn't asked to opine on the radiologist's opinion on that MRI.
Q. Well, that's not what I asked you. Does your view of the MRA of 12-23-15 differ in any respect from the report?
A. Again, I don't feel comfortable providing an opinion on that MRI. I did review --
Q. I didn't ask you whether you felt

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comfortable. You need to answer my questions.
A. Okay.
Q. I didn't ask if you felt comfortable, wanted to. I asked you did your view of the MRA of December 23, 2015, differ in any way from what was reported by the person who reviewed it?
A. I believe it did give me a sense that there was some underlying abnormality of that vessel after I reviewed it.
Q. What was the difference?
A. The difference meaning I saw an abnormality there or at least a possible abnormality that was not mentioned in the report.
Q. Okay. And what abnormality or possible abnormality did you see on the MRA of 12-23-15 that had not been described by the physician who interpreted that study?
A. There was some narrowing or abnormality of the middle cerebral artery on the left side.
Q. And how impressive or complete was the narrowing in the left MCA on the 12-23-15 study?
A. It's impossible to say because the MRI just wasn't accurate enough to be able to measure anything, but it certainly looked like there was some abnormality, is all I could say.

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Q. Could you tell us the degree of probable occlusion or stenosis?
A. No. No.
Q. Could you tell us where the narrowing was -- which branch? For example, M3, M1, M2?
A. I think again it was in the distal M1, proximal M2 area.
Q. Basically the same area where the CTA, CT angiogram at StoneCrest reflected occlusion?
A. Yes, in a similar -- in a similar location, yes.
Q. Right. Now, in the CTA of February 17th, 2016, were you able to actually see a thrombus or embolus?
A. I was able to see a lack of filling, which then you interpret as a thrombus. You don't in a CTA generally see a thrombus itself.
Q. Correct. But you can't -- just because there is no flow of contrast material beyond a particular point, you can say that there is stenosis of some sort, but you can't say it is because of a thrombus or embolus, can you?
A. No, the thrombus was based on my clinical opinion as well as the radiographic, not solely on the radiographic.

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Q. Correct. Now, a thrombus is something that has formed at that particular site; correct?
A. Either at that site or come from another site.
Q. No, an embolus is what comes from another site, isn't it?
A. An embolus starts off at a thrombus so we -- we use it interchangeably, call it either thromboembolus or a thrombus.
Q. But in terms of being precise, an embolus is a thrombus that started somewhere and embolized and moved to a different location; isn't that correct?
A. Again, no. The use of the word thrombus in stroke is used to describe either of the two. If you see a thrombus, almost universally but not in this case likely, thrombi in the MCA are emboli, and they're still called thrombi. So no. Most thrombi that cause stroke come from other place. We know that; that's very clear. In this case, however, this likely, more likely than not, is a thrombus de novo rather than a thromboembolus.
Q. So your view then is now that you've had a chance to see the 12-23-15 MRA and looked at the clinical case, the clinical picture, and also look at the CT angiogram on the afternoon of the 17th at

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StoneCrest, you think what actually happened was the atheromatous plaque in the left MCA, whether it's M1 or M2, ruptured and formed an occlusion at that location?
A. Yes, that is my opinion.
Q. You don't think it's likely that the clot formed in the legs or somewhere else or formed in the right atrium and then traveled to the MCA?
A. I think that's less likely now on my further review.
Q. Okay. Most of the time, though, most -- the greatest majority of cases, a stroke in the MCA is due to a clot forming somewhere else, most often in the right atrium, and traveling to the MCA, isn't it?
A. The left atrium, but yes.
Q. Left atrium?
A. Left atrium.
Q. Yeah.
A. But that's why these guidelines deal with that more common case and not Mr. Ruffino's case, which is a less common and again more amenable to a thrombolytic kind of clot.
Q. I see.
A. That's why I provided my opinion different from the guidelines.
Q. Well, I want to see since you didn't omit

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any of the really important stuff and you wanted to make sure that we were completely informed, where is there a reference at all to the 12-23-15 magnetic resonance angiogram at University Medical Center, or, while you're looking at it, any statement that more likely than not Mr. Ruffino's occlusion was a thrombus in situ in the left MCA?
A. Sure.
Q. Any language to that effect that would have fairly shared that information with me. Please find it for me.
A. Sure. No, I mean, I mentioned just that he had an MRI/MRA, but I had only seen the report at that time, and that there was a thrombus -- again, as a generic term -- but I didn't have that information to say what kind of thrombus it was at that time. Now, none of that changes my opinion on the efficacy of tPA but it simply adds to the definitiveness of that information.
Q. Well, then where is the language that I've asked you to identify in your report? You've not answered my question.
A. No, just the fact that he had an MRI. The other details were not available to me at that time.
Q. And have never been included in a

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subsequent report; right?
A. No.
Q. Have you shared this information that you just shared with me with the lawyer that retained you before we came here?
A. I don't -- like I said, it didn't change my opinion about the tPA, so I didn't --
Q. I didn't ask you about tPA.
A. Sure.
Q. I asked you if you shared your opinion with Mr. Cummings --
A. Sure. No.
Q. -- about the importance of the 12-23-15 MRA?
A. Not specifically.
Q. The likelihood that the thrombus formed at that precise location in the MCA. Did you share that with him?
A. Not to my recollection.
Q. Why not?
A. Mainly, as I was trying to say, because it didn't change my opinion so I didn't feel it was a substantive new -- that a new opinion formed based on that.
Q. Where is the statement in your report then

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that reflected your firm opinion that tPA alone would have been sufficient to recanalize Mr. Ruffino's left MCA?
A. I'm not sure I've -- tPA separate from the thrombectomy in this report.
Q. Well, you've told us now today that we don't need to worry about that thrombectomy because it's more probable than not that tPA alone would have done the job to recanalize. Where is that statement in this report?
MR. CUMMINGS: Object to the form.
A. First I certainly did not say that there was no need for thrombectomy. That's a mischaracterization of my statement entirely.
Q. (By Mr. Gideon) it is?
A. That I clarified a number of times, that I feel there was a strong reason for the thrombectomy, but simply to your question, which was not in my report because it wasn't a strong -- it wasn't an opinion that I formed, but you simply asked would -- you formed the question would tPA have recanalized, and I answered it, but it wasn't -- that specific sub-question was not something I opined on. I opined on the whole scenario.
Q. Well, I don't know what you just -- why you just said what you did in response to my question.

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Mine's really simple. Is there any statement in your report that tPA alone, more probably that not, would have recanalized Mr. Ruffino's artery? Simple question. Is it in there or not?
A. The opinion is that tPA and/or thrombectomy, so one or both for his stroke, but more likely than not experienced an improved neurological outcome and recovery from his stroke. That's the closest opinion I can provide.
Q. There's one, and you said tPA and/or?
A. And/or.
Q. "It is my opinion that should Mr. Ruffino have received tPA and/or endovascular thrombectomy"? That's it?
A. Yes.
Q. Okay. Improved neurological outcome?
A. Right. That's my opinion.
Q. All right. Well, let's talk for a minute about neurological outcomes. You're familiar with the modified Rankin score, aren't you?
A. Right. Yes.
Q. In the modified Rankin score -- R-A-N-K-I-N -- functional independence is a score of zero to two; correct?
A. I believe that's an accepted range, yes.

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Q. And isn't that the goal of tPA and/or thrombectomy, and that is to have a patient who when the treatment's finished has a modified Rankin score of zero to two?
A. No, the goal is modified Rankin of zero. Sometimes zero to one would be our goal for patients with stroke.
Q. All right. And how do you measure a modified Rankin score of one? Then I'll ask you a modified Rankin score of two, so make sure you distinguish between the two.
A. I'd like to have the definitions in front of me before I define them for you. I don't have them in front of me.
Q. Okay.
A. It's degrees of disability.
Q. It's degrees of disability?
A. So one is basically symptoms without limitation, and two is some greater but still not significant limitation in function, mainly mobility. But the exact definitions, again, I'd like to have in front of me before I define them for you.
Q. Well, up to a modified Rankin score of two, you would agree with me, is functional independence; correct?

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A. That's generally considered independent, but still maybe with some symptoms and limitations, and hence one being better with less limitations.
Q. And in fact, all the studies -- and I can go through all the names with you once again if we need to -- synthesis -- of course we won't cover that because you've never read it. But the Interventional Management of Stroke Trial Three, IMS III, the Mr. Rescue, the escape trial. You're familiar with that. The shift prime and the EXTEND-1A -- they all identified and defined the intended good outcome as a modified Rankin score of zero to two, didn't they?
A. Yes. The tPA trials use zero to one in general.
Q. But we're talking about trials. The ones I just mentioned to you were tPA and/or thrombectomy, weren't they?
A. But there were trials of tPA versus non-tPA and that's the first opinion you were asking about, is if he did or did not receive tPA. So those trials are not answering that question. That's why I don't use those trials or these guidelines as reference to this case because none of them deal with the question that you asked me which is tPA or not getting tPA.

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Q. Right.
A. And those trials used a different cutoff.
Q. What trial -- what definition did the NINDS study in 1995, published in the New England Journal of Medicine, that was the basis for the use of tPA intravenously -- what standard did it use for good outcomes based on a modified Rankin score?
A. Well, it didn't actually didn't use the modified Rankin on its own. It had a global cumulative score that you'd need a statistician to explain, but from my recollection the Rankin part of it was mainly zero to one but it also had other, like NI stroke scale and global Ostrom (ph) score that was calculated for statistical reasons. So that trial -- the trials generally have used zero to one, in my recollection, but that trial I know specifically was more complicated because it had a combined outcome.
Q. Right. And wasn't the NINDS study -- which I assume you're familiar with; it was published in the New England Journal of Medicine -- kind of a groundbreaking study -- they had to treat three patients to benefit one, didn't they?
A. I don't know -- I mean, I think that is, again, a misleading statistic, yes.
Q. Well, do you know if that statistic is in

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the NINDS study or not before you tell me it's misleading?
A. I'm not aware that that's in the study, no.
Q. And isn't it true -- and shouldn't an expert, somebody who really is an expert, know this, that in the NINDS study, the trial of intravenous tPA, recanalization occurred in approximately just 30 percent of the patients?
MR. CUMMINGS: Object to --
Q. (By Mr. Gideon) Isn't that right?
MR. CUMMINGS: Sorry. Object to the form.
A. Again, with all different occlusions.
Q. (By Mr. Gideon) Isn't that number right?
A. In the study, yes.
MR. CUMMINGS: C.J., when you can, I need a bathroom break.
MR. GIDEON: Sure.
Q. (By Mr. Gideon) Do you want to take a break too, Doctor?
A. I'm fine, but we can take a short break now.
MR. GIDEON: I'm happy to take a break whenever anybody wants to. We'll stop now and --
[A brief recess was taken.]

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Q. (By Mr. Gideon) The MRA of December 23, 2015, showed narrowing in arterial structures generally described as the middle cerebral artery on the left side of Mr. Ruffino's brain; correct?
A. In my review that's what I saw.
Q. And isn't it more probable than not that the narrowing in the middle cerebral artery distribution was due to atheromatous plaque?
A. I think more likely than not that's a reasonable assumption or guess, yes.
Q. An atheromatous plaque itself is not dissolved by tPA, is it?
A. No.
Q. You have to have a fresh thrombus in order to activate it, dissolve it with alteplase; correct?
A. Yes. Yes.
Q. So we will agree then that if you have a patient who has a stenosis due to progressive atheromatous narrowing of a vessel, tPA is not going to Roto-Rooter that atheromatous plaque away; correct?
A. Correct.
Q. Now, do you know Jodi Dodds, the chief of vascular neurology at Duke?
A. No.
Q. Have you looked up anything on her

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background?
A. No.
Q. Did you actually look at her report in this case?
A. If it was in here I probably did. The was.
Q. Do you remember whether there was a report from a Jodi Dodds, chief of vascular neurology at Duke?
A. There was a number of reports that kind of ran together, to be honest, so I don't know who said what.
Q. Did you, as you were trying to think of a trial that might support what you were telling me under oath, did you think about the Atlantis trial?
A. It didn't come to mind, no.
Q. Do you know about the Atlantis trial? Have you ever heard of it before?
A. Yes.
Q. The Atlantis trial was one where they made an effort in the United States and other areas to extend the use of tPA between three and five hours; correct?
A. Yes.
Q. And it was a complete failure, wasn't it?
A. I don't know if I would qualify it as a

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failure because I believe it's been incorporated into further studies that show an overall benefit in tPA in that time window.
Q. Isn't it true that the conclusion of the Atlantis trial was there was no, no benefit, on a more probable-than-not basis, for extending the use of tPA from three to five hours? Wasn't that the conclusion?
A. Of that one study at that time, yes.
Q. And when was that one study at that time?
A. It was I think over 15 years ago.
Q. Atlantis was over 15 years ago?
A. I believe so.
Q. Okay. All right. Would you agree with a neurologist, a person who offers testimony in this case, that IV tPA is only good for about a 30 percent benefit? As a general rule, would you agree with that statement?
A. I'd need to have it clarified what 30 percent benefit and what.
Q. Benefit in terms of recanalization, revascularization. Only 30 out of 100 patients will be recanalized, revascularized by IV tPA alone.
A. Yes, again, as I've said many times, in all types of occlusion the average is about 30 percent. Not in this case.

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Q. And are you telling me that we will find literature, though, that says that if you can identify that cohort of patients that have existing atheromatous plaque and there is a plaque rupture such that a thrombus forms at that location, that we will find literature showing that more than 50 percent of those patients are recanalized or revascularized by tPA alone?
A. I'm saying that opinion is based on my summary of all my knowledge, not just one single study.
Q. I asked a different question. Are you going to be able to provide me with a single study or even two?
A. I will --
Q. You will look?
A. I will look, but I --
Q. But you don't know that you will be able to do that?
A. My opinion is not based on any single study, yes.
Q. Well, there may be a requirement, though, that your opinion be supported by a study, so here's the question, and then we'll move on. Are you aware, as we sit here today having this discussion, of a single study in the world's literature that supports

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your testimony that in a patient with atheromatous plaque that ruptures and there is a thrombus formation at that location, that tPA alone intravenously will in more than 50 percent of the cases revascularize or recanalize? Are you aware of any such study?
A. I'm not aware of one single study that deals with all those subgroups, no.
Q. That deal with the subgroups that you say are specific to this case?
A. Yes. My opinion, again, is based not on a single study but on a full expert scientific review of multiple medical and scientific opinions on atheroma, thrombus, stroke, and so there's no single study that I used to incorporate all that information. So --
Q. Right. Now, did you ever look at the inclusion or exclusion criteria for the use of tPA at StoneCrest?
A. I don't believe I looked at the StoneCrest, but in general I'm aware of the inclusion/exclusion criteria for tPA.
Q. I didn't ask you if you had this --
A. Oh.
Q. -- generic view of what was okay. I asked a very specific question.
A. Okay.

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Q. I need to go back to where we started. Please answer my questions directly. Did you look at the StoneCrest inclusion or exclusion criteria, question mark?
A. Not in my recollection.
Q. It was never furnished to you?
A. Again, not in my recollection.
Q. And you didn't ask for it?
A. No.
Q. Do you know if it is common to have an exclusion criteria of a systolic blood pressure greater than 185?
A. Yes.
Q. You say you know. What is common in terms of exclusion? It's normally excluded if the systolic is over 185?
A. Yes. Persistently above that, yes.
Q. Persistently above. For how long?
A. Despite treatment, if it stays above that.
Q. For how long, is the question?
A. I don't believe there's a certain time window before you need to treat.
Q. Is there an exclusion or inclusion criteria at Washington University St. Louis in the ER in effect in February of 2016? Did they have such a

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document?
A. I would say similar, yes. Similar guidelines.
Q. What was their exclusion criteria for the use of tPA in terms of last normal as of February of 2016?
A. At that time I believe it would have been four-and-a-half hours.
Q. 4.5 here at the tertiary center?
A. That's right.
Q. And that would be measured four-and-a-half hours from last normal; correct?
A. Yes.
Q. Have you actually looked to see if there was an inclusion or exclusion criteria in the ER here at this facility in February of 2016? Or are you just guessing there probably would be?
MR. CUMMINGS: Object to the form.
A. I mean, it's hard to -- could you clarify?
Q. (By Mr. Gideon) Yeah, I can. Have you looked to see if there was an inclusion and exclusion criteria for use of tPA in the ER here in February of 2016?
A. Yes, I'm aware of off the -- that there are ER guidelines for the use of tPA, yes.

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Q. And are you aware of the content of these guidelines?
A. Pretty closely, I would say.
Q. Was there a requirement that the patient's presentation fall within a range of the NIH stroke scale, referred to as the NIHSS?
A. I don't believe there's a specific guideline or cutoff for that, no.
Q. There wasn't a maximum NIHSS in the ER protocol?
A. Not to my knowledge.
Q. And there wasn't a minimum?
A. Not to my knowledge.
Q. Now, was there a NIH stroke scale minimum for the use of endovascular embolectomy in the -- in this hospital in February of 2016?
A. Again, I don't believe there's a hard cutoff, but there are some guidelines.
Q. The guidelines that were national in February 2016 were that the NIH stroke scale, if less than six, endovascular embolectomy was not indicated; correct?
MR. CUMMINGS: Object to the form.
A. I think in general that's correct, yes.
Q. (By Mr. Gideon) Wasn't that the standard

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utilized here in February of 2016?
A. I don't -- I can't say for endovascular what the protocol was. I only know the tPA ones.
Q. What was the standard at Centennial Medical Center in February of 2016 in terms of performance of endovascular embolectomy or thrombectomy? What was the minimum NIHSS required before they would consider doing it?
A. Again, I'm not aware of those specific cutoffs at that center.
Q. Now, you do agree that you know from the materials you've looked at that nobody was going to perform endovascular treatment at StoneCrest; correct?
A. Correct.
Q. And transfer was necessary in order for that to occur; correct?
A. Correct.
Q. Let's talk for just a moment. Dr. Chitturi's affidavit -- and it's Paragraph 9. I think you already told me you found it in this stack of materials.
A. Okay.
Q. Don't knock your coffee over.
A. Yeah.
Q. Look at Paragraph 9 of his affidavit,

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please.
A. Yes.
Q. And you see that he states in Paragraph 9 -- and of course I'm looking at this upside-down, so it's not designed to be a literal statement, but the guidelines there required an NIH stroke scale of six or greater, and he would not have recommended transfer for endovascular embolectomy. You've seen that; correct?
A. I see that statement, yes.
Q. Do you have any basis for disagreeing with that conclusion?
A. Well, I would disagree that guidelines and requirement are the same thing. I mean, I think the guidelines do generally state, but obviously each individual patient can be treated differently from the guidelines.
Q. Are you of the school of thought, Doctor, that a physician can comply with published guidelines but you might still find them falling below what you define as accepted standards of care?
A. Yes, I believe I've said that before.
Q. Yeah, you have. In fact, in the McGill case, do you remember testifying that you would be prepared to say that somebody could, in your judgment, fall below standards of care even though they've

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complied completely with published guidelines? Do you remember saying that?
A. Yeah.
Q. And that doesn't bother you a bit, does it?
A. No. Guidelines are not supposed to be the letter of the law.
Q. Who told you that?
A. I didn't realize someone has to tell me that.
Q. Okay. And likewise you've testified under oath and you're saying it again today that a physician could follow the guidelines published in stroke -- published by the American Stroke Association -- and still fall below what you define as the standard of care; correct?
A. Correct.
Q. What made you the arbiter of what's right and wrong if your opinions are at odds with the guidelines, Doctor? Where do you get off taking that position, is my question?
MR. CUMMINGS: Object to the form.
A. I think it's dangerous for any physician to use the guidelines to justify how they treat individual patients, so I'm simply a physician who

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looks at each individual patient differently, and I think many -- most good physicians would do the same and not rely on guidelines when treating an individual patient.
Q. (By Mr. Gideon) Well, now we should be able to reach an accord on one part, and that is the physicians in this case, Dr. Chitturi, Dr. Archer, they are dealing with Mr. Ruffino prospectively; correct?
A. Correct.
Q. And Dr. Dhar, on the other side, is looking at this case without time constraints and with the benefit of hindsight; correct?
A. Right.
Q. Now, tell me, what are the risks associated with giving tPA? It's not a risk-free drug, is it?
A. There are some increased risks of bleeding, primarily.
Q. Yeah. And in fact, it's one of those drugs, isn't it, that one of the areas where there is an increased risk of bleeding is an intracerebral bleed, isn't it?
A. Yes.
Q. Such that when bleeding occurs, it can be catastrophic for the patient; correct?

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A. Can be.
Q. Yeah. That's one of the reasons why last time to normal is so important, isn't it?
A. That can be used in your weighting of how the risk of -- the risks and the benefit a weight on time, yes.
Q. Correct. Well, what I'm getting at is this is consistent with what you and I talked about before, and that is if tPA is most effective in a freshly-formed thrombus, you want to attempt to lyse that freshly-formed thrombus earlier rather than later; correct?
A. Yes, earlier is definitely better.
Q. Because the systemic risks associated with tPA are the same throughout the time of use; right?
A. Yes, generally the same, yes.
Q. Right. So if you're giving tPA to a patient and it's hours and hours and hours since the thrombus formed, you have this terrifying risk of intracerebral bleeding, and the further out in time you are from last normal, the less likelihood you're going to help; right?
A. Yes.
Q. It's that simple?
A. Yes.

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Q. So let's talk about last normal in this case.
A. Okay.
Q. Which I hope you looked at carefully.
A. Yes.
Q. Didn't you?
A. Yes.
Q. Well, let's just start off to begin with. Did you look at Mr. Ruffino's deposition carefully to focus on what he said about last normal?
A. I believe I did, yes.
Q. And did you also look at Mrs. Ruffino's testimony about her husband's truthfulness?
A. I did see some of that in her deposition, yes.
Q. Let's talk for just a moment about the credibility of the source of information. Do you recall, Doctor, that Mr. Ruffino said Dr. Efobi, the private practice neurologist, never told him to quit smoking? Do you recall him saying that?
A. I don't recall that specifically, but I remember Dr. Efobi did state that in his -- that he had recommended quitting smoking.
Q. Right. You've seen Dr. Efobi's records; correct?

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A. Yes, I believe so.
Q. And it's a she, by the way?
A. Oh, she. Okay.
Q. And Dr. Efobi clearly documented her recommendations, her instructions to Mr. Ruffino to quit smoking; correct?
A. Yes.
Q. Which was entirely appropriate?
A. Yes.
Q. You notice that she also ordered a series of lab tests, didn't she?
A. Yes.
Q. And one of those lab tests was to identify his homocystine level; correct? Do you remember that?
A. I don't remember that testing specific, but that --
Q. Well, that test is pretty important, isn't it, in terms of risk of thrombus or embolus formation?
A. No, generally very unimportant.
Q. Unimportant?
A. Yes.
Q. And an expert in this field would know then that the literature fully supports the notion that homocystine levels have nothing to do with the risk of bleeding; right?

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A. Sorry. Could you -- I thought you said thrombus or bleeding. Sorry. Just clarify the question.
Q. Sure. You're telling us that homocystine levels are unimportant in terms of likelihood of thrombus or embolus?
A. In this case I don't feel it's a relevant -- it's the most relevant lab test, yes.
Q. That's not the question I asked.
A. Okay.
Q. I didn't ask whether it was the most relevant, least reveal, or relevant lab test.
A. Okay. Okay.
Q. I want to cover what you just said and get it narrowed down so that when somebody else looks at this, they can tell us whether you're right or wrong. Are you telling us under oath that homocystine levels are unimportant in deciding whether the patient has an increased risk of thrombus or embolus formation, question mark? It's a yes or no.
A. No, not unimportant, no.
Q. It's not unimportant?
A. No.
Q. So then you didn't pay any attention to the level in this case. Why is that?

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A. I don't recall. Either it wasn't significantly elevated or, as I said, it's not very important. It's not a major factor.
Q. It's not unimportant, but it's not --
A. It's not --
Q. -- very unimportant?
A. Exactly.
Q. Well, how important is it?
A. Mildly important.
Q. Mildly important. Well, then it's worth at least mild knowledge of what it was. So what was it? Was it significantly elevated or not?
A. I don't recall.
Q. Isn't the truth that you didn't look at it at all?
A. No, I don't believe that's the truth.
Q. Where are Dr. Efobi's records in this material? You told us earlier you brought your whole file with you. Where are they --
A. Well, most of what I reviewed was electronic and I --
Q. You told us earlier you brought your whole file with you. I relied on what you told me. I want you to show me Dr. Efobi's records, please.
A. Well, this is my notes based on reviewing

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the records.
Q. Where are Dr. Efobi's records?
A. I brought the records that I have printed out.
Q. All right. So you have some records we've not seen today that are digital?
A. Right.
Q. They're on a computer?
A. Right.
Q. You didn't bring the computer?
A. Right. It's on my work computer, which I can't bring.
Q. You don't have a laptop?
A. No.
Q. You don't even carry a laptop around?
A. I mean generally not, no.
Q. Well, did you just decide not to do it today?
A. I did not realize or wasn't asked to bring the laptop with the electronic files, I guess, or didn't realize I was.
Q. So what is on the laptop or the base station in your office that we haven't seen today?
A. The records that I reviewed. StoneCrest Medical Center and some other records, I believe, from

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Dr. Efobi, in my recollection -- various electronic files with those records on it.
Q. How about the Centennial Medical Center records? Did you ever look at those?
A. I reviewed some, but I don't believe I have the full records from the Centennial Medical Center.
Q. Well, how much of the Centennial record did you look at? You do know, don't you --
A. Yes.
Q. -- he was transferred to Centennial on February 17th; right?
A. Yes.
Q. Did you see the entire longitudinal record from February 17th to February 26th, 2016?
A. I saw some records, but I cannot say if I saw them all. I mean, I focused mainly on that day and then maybe the next day what happened.
Q. But he wasn't at Centennial just for a day or two?
A. Correct.
Q. He was there until the 26th?
A. Right. And I don't recall going through all those records, no.
Q. Do you ever recall seeing Mr. Ruffino's

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condition when he was discharged from Centennial on February 26th, 2016?
A. I think I saw it from his deposition or various depositions, not from the records.
Q. Let make sure we're talking to each other. Looking at the Centennial Medical Center records, did you see anything reflecting his condition -- and this is John Ruffino -- on February 26th, 2016?
A. Not from my recollection, no.
Q. Did you ever see his condition on the 20th, 21st, 22nd, 23rd, 24th, or 25th of February 2016?
A. I don't see any recollection of me reviewing those from my notes that I have those records reviewed or annotated, at least.
Q. You have no recollection of ever seeing those records, and likewise there is no notation that you saw them in your notes; correct?
A. That's correct.
Q. And you are a person who normally makes a notation as you review some records, don't you?
A. Of anything significant, yes.
Q. And you have only three pages of handwritten notes?
A. On this case.
Q. On this case?

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A. Yes.
Q. We will make those Exhibit 11.
A. Yes.
Q. Will you pass these to the court reporter, please?
A. Yes. Make sure they're in the right order. That's --
Q. How would you know?
A. Yes. Not the most clear, except the title is on the first page, so -- and then the summary is on the final page. So I guess that's --
[Exhibit 11 marked for identification.]
Q. All right. When we were talking about John Ruffino, I asked you if you had looked at his deposition and asked you if you had looked at his wife's deposition. Would you agree with me that even assessing his testimony just based on what his wife said, he was a charitably, you'd say, a poor historian, or less than charitably, dishonest under oath? Would you agree with that?
A. I don't think I could say dishonest. I noticed that she questioned some of his recollections. That's the furthest I would probably be able to go.
Q. Well, would you agree then that based on her testimony he is at best a very poor historian?

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A. I would simply -- I would say that she disagreed with him on some facts for sure, yes.
Q. Well, let's focus on your careful review of this very important topic, and that is when this man was last normal. Let's start first with -- and you're free to look at those notes if you wish to at any time.
A. Okay.
Q. When did this man start having what I'll call TIAs? And I guess we should see if you find that acceptable. Transient ischemic attacks. Is that a fair description of what he had before February 17th, 2016?
A. I think certainly in retrospect it's -- with the benefit of hindsight it's very reasonable to say these were TIAs. I think even prospectively it's -- they were more likely than not TIAs. We would say they're transient neurological episodes.
Q. Is there a new word for this transient neurological episodes, a TNE?
A. No, I think that's how -- that's the word we've always used, but TIAs is just more common because most of them are due to ischemia. But until you know that, you don't want to say it's a TIA until we have some more information.
Q. Let's continue your retrospective

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evaluation of this case. Was Mr. Ruffino, in your opinion, having TIA symptoms because of the stenosis shown on the MRA of 12-23-15?
A. In retrospect I certainly think that's the most likely explanation for his symptoms.
Q. When did these TIAs actually first begin, based on a point-by-point review you've made with the benefit of hindsight?
A. I believe it was earlier in December of 2015.
Q. You think that might be wrong?
A. Could be. I know there was a number, at least four, but I'm trying to find the first date. I mean, I guess there's a note of even something in August of that year, but again, I didn't -- beyond the deposition, I didn't have definite data on that.
Q. Yeah, but you had Dr. Efobi's notes, you tell us.
A. Yeah.
Q. She had a history.
A. Right. I don't think I noted the first date, at least. I just remember there was a number of episodes. That was enough for me to say these were likely TIAs and the dates didn't really --
Q. What's the difference between a TIA and a

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stroke?
A. I mean, it's a good question. I would think a TIA we don't think has permanent damage to the brain.
Q. How do you know?
A. That's why it's tough, because we don't always know, so the fact that they resolve relatively quickly, within 15 minutes or so, gives you a high likelihood more likely than not this is a TIA and not a stroke, so we use time as a surrogate.
Q. What is the definition of a TIA to distinguish it from stroke? How long must the symptoms last or how soon must the symptoms resolve -- is a better way to put it -- to distinguish between a TIA and a stroke?
A. I mean, I would say, again, most within 15 minutes, but generally anything lasting more than an hour you would be very concerned to say that's a transient event without damage.
Q. Were you able to see the existence of any damage in Mr. Ruffino's brain on the MR of 12-23-15?
A. No. Again, and that would add to the conclusion that these were likely TIAs and not strokes.
Q. Because you don't see any damage, any preexisting damage at all?

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A. Certainly not a -- there were some minor abnormalities in the brain, but not enough to say a definite stroke.
Q. Well, that's not what I asked.
A. Okay.
Q. Was -- on the 12-23-15 MRI were there permanent changes in the parenchyma of his brain?
A. Yes.
Q. And what were the permanent changes in the parenchyma of his brain already apparent on 12-23-15?
A. Small lesions in the white matter, not consistent with stroke, but consistent with maybe some chronic ischemia to the brain.
Q. Chronic ischemia meaning consistent with lacunar infarcts?
A. No.
Q. No? Definitely not consistent with lacunar infarcts?
A. Definitely -- right.
Q. But --
A. What we call --
Q. White matter changes consistent with longstanding hypertension?
A. Yes, that's one of the most common etiologies for these white matter lesions.

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Q. And where were the white matter lesions already obvious in the 12-23-15 MR? What portions of the brain?
A. Both sides of the white matter in the hemispheres of the brain.
Q. Well, there are two hemispheres; correct?
A. Yes.
Q. Left and right?
A. Yes.
Q. There's white matter and gray matter in the brain; correct?
A. Correct.
Q. So where were the permanent changes in his MR already on 12-23-15 before he ever set foot at StoneCrest?
A. So the white matter abnormalities were in the white matter and they were on both sides.
Q. In addition to describing tissue based on its appearance, white versus gray, there are sections of the brain. There's the parietal, the temporal, the frontal -- those areas. Where in terms of segments of the brain were these white matter changes that were symmetrical and on both sides?
A. They were small areas in the -- probably the frontal white matter.

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Q. Left and right frontal lobe?
A. Frontal or parietal.
Q. And you didn't have any trouble seeing them, did you?
A. No. Given hindsight, it was easy to see there were some abnormalities there, but very small.
Q. Right. Uh-huh. Okay. Now, let's talk about when you thought these events first occurred.
A. Okay.
Q. You tell us based on the most careful review that you can do they began in December of 2015?
MR. CUMMINGS: Object to the form.
A. Yeah, in my -- at the time of my review, December 2015, but it looks like in his deposition he mentions maybe something in August.
Q. (By Mr. Gideon) Of 2015?
A. 2015.
Q. Let's take a look at Dr. Luck's (ph) record of November 24, 2015. I think you'll find this interesting. (Hands document to witness.)
A. Okay.
Q. Have you ever seen any of the records from Dr. Luck of November 24, 2015, previously?
A. Just -- I hadn't seen them for my opinion. I've seen them briefly since then.

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Q. When did you just see them briefly? I thought you brought with you everything, and I didn't see them.
A. I don't have them printed out. I just saw them electronically very briefly in the last week.
Q. Well, when did you get these new records within the last week? What else came with it besides --
A. I think it was just this -- some documents from this physician. I really didn't have a chance to review them in any detail.
Q. Well, let's take a look here.
A. Okay.
Q. As of November 24, 2015, you can see that Mr. Ruffino -- right up here, Doctor. (Indicating document.)
A. Yes.
Q. The history of present illness.
A. Yes.
Q. Is complaining that -- Mr. Ruffino is complaining to Dr. Luck that he's having problems with the right side of his face, he can't talk, problems with the upper extremity, right arm, and the lower extremity, right hip and leg to the foot. The severity is severe. The onset was a month ago, which would put

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it back into either the earliest part of November or October of 2015, and it occurred -- is it eight times that month or six times that month?
A. Six times.
Q. Six times that month, lasting 10 minutes, one time while driving. And that's why Dr. Luck referred this patient on to Dr. Efobi. This is substantially different than the history you got previously, isn't it?
A. No, this is entirely consistent with having multiple TIAs prior to the stroke.
Q. Well, isn't it true that Dr. Efobi described four events total based on Mr. Ruffino's history? We now have six more; isn't that right?
A. I'm not sure -- these are a separate six or these are four out of the six? I can't tell -- this is the same four, plus two more.
Q. You just don't know?
A. No, I don't know.
Q. What is the risk presented by TIAs in terms of the probability that once you've had one and then had two and three, that it becomes more and more progressively likely that you will in fact have a disabling stroke?
A. Yeah, I don't believe there's any clear

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data to support that.
Q. One way or the other?
A. Right. There is a risk of stroke with TIAs, but I don't believe it's any more likely with more frequent episodes.
Q. So you wouldn't agree with a neurologist then who says that once somebody has had sequential TIAs, that is a sure sign that bad things are going to happen? You wouldn't agree with that?
A. No, I would agree -- we know he has multiple TIAs, as I state in my opinion -- at least four is multiple -- and so I agree that he's at high risk. I don't know if six versus four makes an increased difference. He certainly was having TIAs and had multiple ones. I would certainly agree with that.
Q. All right. Well, why is it then with repeated TIA, repeated TIA, repeated TIA -- why is it that at some point in time -- and we're going to talk about it -- he forms a thrombus either in M1 or M2 of the left MCA? Why? Why after maybe four, maybe 10, maybe six -- who knows?
A. Yeah.
Q. Why does it occur in this patient at that location?
A. Yeah. We have no idea.

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Q. Well, can you tell me what makes it most likely? What is it about him, his conduct, his life, his experience, his blood pressure -- any factor -- made formation of the thrombus at that location more likely than not after the series of TIAs?
A. Yeah, I don't think the series matters, but I think it simply reinforces the fact that there was this underlying lesion more likely than not there. That's the main risk factor, the fact that there's an unstable lesion. And then why it develops a stroke one day, we don't know, but certainly having that lesion would explain, I think, now having seen the MRA, why he was having so many events.
Q. Now, you used the term unstable lesion. Are you telling us that each of these TIAs, however many there were, based on Mr. Ruffino, the historian, were due to plaque rupture in the atheromatous plaque in the left MCA at either M1 or M2?
A. Don't know if we can say plaque rupture, but certainly instability of something around that plaque. I don't think we know --
Q. Tell me what you mean by instability.
A. Simply that TIAs are due to some change, and when something changes, it's unstable, that most of the time he doesn't have a TIA and then when he does,

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clearly there's been a change in the blood flow past that stenosis.
Q. Well, then what we can do is nail it down in terms of what's most likely.
A. Okay.
Q. We know that with respect to each of these TIAs, with the benefit of hindsight, it is more probable than not that there was a change in perfusion through the left MCA at M1 and/or M2; correct?
A. I would agree with that.
Q. All right. What is the most probable explanation for a change in perfusion at the left MCA at M1 or M2 to trigger these TIAs, irrespective of how many there were?
A. Sure. More likely than not, some clot or plaque change that happened at that time.
Q. And more likely than not, a thrombus that his own onboard system lysed? Do you think that's most likely?
A. I think there's certainly a good chance that was a factor, yes.
Q. We all generate naturally-recurring thrombolytics within our system, don't we?
A. Yes.
Q. Do you think it's really likely that it is

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a clot-diminishing perfusion, or do you think that it's more likely changes in his blood pressure?
A. I think it's more likely a clot, but again, as I said, we can't state for sure, but more likely than not I think this was a clotting process, not a blood pressure process.
Q. Now, whether there is permanent injury as a result of diminished perfusion is a factor determined by metabolic demand of the tissue and degree of diminished perfusion; correct?
A. Primarily duration, I would say, of the diminished -- like if that clot stays and doesn't go away, then the duration extends such that the damage is permanent.
Q. Correct. Now, we do know that there is a an MR of 12-23-15, but we don't have an MR in January of 2016 and we don't have any MR until February 18th, 2016; correct?
A. Yes.
Q. Isn't that right?
A. That's correct.
Q. Did you actually look at the February 18th, 2016, MR that was done at Centennial Medical Center?
A. I looked at the report of that one, not

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the actual image itself.
Q. So the answer is no --
A. No.
Q. -- I've never looked at the imaging study?
A. Not the imaging itself, no.
Q. You do not -- let's see which ones you actually looked at. Did you actually look at the CT perfusion that was done at Centennial?
A. I looked -- no.
Q. Have you looked at any of the imaging studies at Centennial?
A. Not Centennial, just StoneCrest and the MRA.
Q. So then collectively, irrespective of how long the admission was at Centennial, you have never put your eyes on the study itself?
A. No.
Q. Now, you've got StoneCrest imaging, here you've got Centennial Medical Center imaging Ruffino, a disc that you've never opened; right?
A. That's right.
Q. When did you get the disc of the Centennial Medical Center imaging that you've never opened?

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A. I think I just got those yesterday.
Q. What else did you just get yesterday?
A. This I got previously in the mail in the last -- when I was gone out of the country.
Q. Excuse me.
A. Sorry.
Q. The "this" won't be clear on a transcript.
A. Oh, sorry.
Q. There is a reference to Tennova Healthcare Lebanon, which is the 12-23-15 imaging. When did you first get that?
A. It arrived when I was out of the country in the last seven days.
Q. In France?
A. Exactly.
Q. You first looked at the Tennova 12-23-15 imaging yesterday?
A. Or the day before. In the last two days, yes.
Q. Are any of your notes pertinent to your interpretation of that imaging from 12-23-15?
A. No.
Q. Did you make any notes as you reviewed the 12-23-15 imaging?
A. No.

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Q. After you got back from France, you found out that you had also been sent Centennial Medical Center imaging; correct?
A. Yes.
Q. That you've never looked at?
A. Not at this point, no.
Q. And you have StoneCrest imaging. When did you first get the StoneCrest imaging?
A. Also yesterday.
Q. Yesterday?
A. Yes.
Q. So before you signed off on your opinion in this case, you had never once actually looked at any imaging studies; correct?
A. Only the reports not the imaging themselves.
Q. Let me just ask the question so I get an unequivocal answer. Before you finalized your February 5th, 2018, report, it is correct you had never laid eyes on a single imaging study yourself; correct?
A. Correct.
Q. Okay. Let's talk about the -- what you understand to be the case with respect to the February 18th MR.
A. Okay.

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Q. He had diffuse cerebrocortical loss; correct? I'll save you some time. (Hands document to witness.) I'm handing you a copy of the February 18th, 2016, MR of the brain.
MR. CUMMINGS: Thanks.
MR. WITT: Thank you.
MR. GIDEON: Uh-huh.
Q. (By Mr. Gideon) If you look at the results, the third element, it says mild diffuse cerebrocortical volume loss.
A. Okay.
Q. You saw that previously if in fact you looked at this report?
A. I --
Q. Do you have an opinion as to whether or not that diffuse cerebrocortical volume loss was due to the chronic changes shown on the MRI of 12-23-15 in the white matter?
A. Don't think it's the same, but I mean, similar processes can cause both.
Q. Well, then where is this change, this mild diffuse, meaning everywhere, cerebrocortical volume loss? Where is it as compared to the white matter changes you described previously?
A. Okay. Corti -- it's in the cortex, so

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gray matter.
Q. We're not neurologists.
A. Okay. Yes. The surface of the brain.
Q. So we have the gray matter on top of the white matter; right?
A. Right. So there's some diffuse loss of the size of that gray matter.
Q. Right. And what does the gray matter do?
A. I mean, generally, it houses the brain cells -- most of the main brain cells.
Q. Right. Therefore the February 18th, 2016, MR, comparing it with 12-23-15, shows white matter loss, to your eyes, 12-23-15, and a report reflecting gray matter loss February 18th, 2016. What in your opinion is the cause of the diffuse cerebrocortical volume loss in the gray matter?
A. I can't say for sure. I could only speculate that it could be also the same thing that caused the white matter, but really, without looking at it, I have no opinion on that.
Q. You know it's there from the report; you just don't know why?
A. And I would like to look at the images as well to compare at some point.
Q. Right. Nobody's kept you from looking at

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them?
A. No. Just --
Q. This report likewise refers on diffusion imaging -- which is a component of a magnetic resonance scan; correct?
A. Correct.
Q. Diffusing imaging shows patchy infarcts of the left basal ganglia; right?
A. Right.
Q. Now, infarct is death of tissue, isn't it?
A. Yes, we think so.
Q. What, in your opinion, was the cause of the patchy infarcts in the left basal ganglia of Mr. John Ruffino as of February 18th, 2016?
A. The event, the untreated event he had on the 16th at StoneCrest.
Q. I see.
A. The blockage and a stroke.
Q. Now, were you ever provided with the affidavit of a Dr. Valdivia?
A. That doesn't sound familiar, no.
Q. Doesn't sound familiar at all?
A. (Shaking head "no.")
Q. Does the name Valdivia just sound familiar to you in the slightest?

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A. I know there was a doctor at Centennial. I don't know if that was the one, but there was a doctor's name that vaguely sounds familiar. That might have been, but I didn't review those records in great detail, so I don't have a great --
Q. Yeah, I can tell.
A. Yeah.
Q. Well, do you know whether or not Dr. Valdivia has expressed the opinion that these infarcts in the left basal ganglia of Mr. Ruffino are old and preceded February 17th, 2016?
A. The question is if I'm aware that he said that?
Q. Yes.
A. No, I'm not aware he said that.
Q. For you to determine whether these left patchy infarcts in the basal ganglia are something that happened on the 17th or something older than that, you'd actually have to look at the imaging, wouldn't you?
A. No, I think the report in this case is pretty definitive that these are new.
Q. Oh, it is?
A. Yes.
Q. I see. Okay.

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A. Diffusion images are very definitive. If they're showing up only there, you know it's basically within 24 hours.
Q. You do know that?
A. Yes.
Q. And of course the radiologist that's dictating this report, Dr. Waters (ph), would know that, too; right?
A. Yes. That's why he says acute left-sided infarcts.
Q. I see. Where is it that he says acute patchy infarcts on the diffusion?
A. In the impression. In the impression. Under the impression he says acute left-sided infarcts, as discussed above.
Q. I see.
A. Mainly involving the left basal ganglia and corona radiata.
Q. Okay. Now, what about the very tiny embolic infarcts in the left frontal lobe and the left occipital lobe? What caused those?
A. Probably also the stroke of the day prior that he presented with.
Q. That's your opinion to a reasonable degree of certainty?

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A. Yes.
Q. Did you see any patchy infarcts in the left basal ganglia and the corona radiata on the 12-23-15 MR?
A. No.
Q. Did you look for them?
A. I did, yes.
Q. Now, on the 2-18-16 MR, could you tell us the size of the infarct core lesion?
A. On this MRI?
Q. Yes.
A. Again, since I haven't reviewed it, I can't give you a volume without -- and it's not stated in the report.
Q. Right. So you wouldn't be able to answer that question?
A. Not exactly, no.
Q. Can you grade the infarct using the ASPECTS scoring system?
A. We don't usually grade infarcts with ASPECTS scoring system, so no.
Q. Well, some of the trials actually have, though, haven't they?
A. No.
Q. None?

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A. Not to grade infarcts.
Q. How do you measure the difference between core infarct tissue that's lost versus what's called the penumbra, the tissue that might go either way?
A. On an MRI?
Q. Yes. How do you go about doing that? What is it that distinguishes one from the other?
A. The best sense of the core on MRI is the diffusion images that show what we think is more likely already infarcted.
Q. But when you see it, tell us what you see.
A. A bright area on that diffusion sequence, as is stated here, that lights up on that one sequence, which picks up the core areas of infarction.
Q. And with respect to the penumbra, what do you see as compared to the core areas of infarct?
A. The MRI is not able to inform you at all about penumbra -- this kind of MRI.
Q. The only way you can do anything responsible with respect to the size of the penumbra is using the CT perfusion scan?
A. Some kind of perfusion scan is usually needed for that, either CT or MR perfusion.
Q. All right. Well, let's take a look at the perfusion scan done the same day, and I have a copy of

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it for you.
A. Thank you.
Q. So you don't have to look back. (Hands document to witness.)
MR. CUMMINGS: Thanks.
Q. (By Mr. Gideon) By the way, did you make any notations on the perfusion scan in your notes?
A. Let's see. I don't believe so, no.
Q. Can you tell us then from what you've done so far the absolute size of the penumbra and the extent to which there was a mismatch with the ischemic core, based on this study?
A. This -- I'm just looking at the time now. So the CT was at --
Q. The CT perfusion is done at 12:00 AM on February 18th, 2016?
A. And the MRI --
Q. The MRI was performed at seven -- excuse me.
A. Where does it say --
Q. It was signed off at 21:37 on February 18th.
A. Got you.
Q. So we know it had to have been done sooner than that.

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A. Some time -- so some time later that day, the MRI was performed. So the CT perfusion seems like it shows decreased perfusion in the left MCA distribution, so --
Q. That's not what it says.
A. Oh, I was just reading -- decreased perfusion throughout the left middle cerebral artery distribution --
Q. No --
A. -- in the impression at the bottom. Am I not reading the right thing?
Q. It says there is decreased mean transit time and time to peak throughout the left MCA distribution of the perisylvian, left frontal, temporal, and parietal lobes, period. Then it says there is relatively normal cerebral blood flow and cerebral blood volume. He goes on to say decreased perfusion throughout the left middle cerebral artery distribution without evidence of ischemia at this time.
A. Okay. Yeah.
Q. So what I'm asking you is to tell us -- first of all, can you tell us the size of the penumbra and using the MRI as well as the degree of mismatch between the infarcted core and the penumbra in this patient as of February 18th?

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A. No, I don't think you can use the two different studies at two different times to do that. I think --

Q. Can you tell us the size of the penumbra then based on the February 18th, 2016, CT perfusion scan?

A. It seems like all I can say from the CT is there was decreased perfusion in that MCA area at that time.

Q. But you can't tell us the size of the penumbra?

A. No, because we don't have a measure of the core at this time that's very accurate. We know on the MRI that there was already some infarcted tissue however many hours later.

Q. But you can't tell us the size of the infarction?

A. On a CT I would have a hard time knowing the definitive size of the core.

Q. Yeah, well, what about on the MR? Can you tell us the size of the ischemic core?

A. Again, not exactly, but it looks like it's patchy, meaning it's not the whole MCA.

Q. Yeah.

A. That's all I could really say.

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Q. Right. What is the meaning that we should assign, guided by your knowledge, of Dr. Lasseter's (ph) statement that there is relatively normal cerebral blood flow and cerebral blood volume? What does that mean?

A. Again, I would really like to look at the images because I have a hard time interpreting this particular study because in the sentence before he says decreased mean transit time throughout the left MCA and uses that, in my opinion, to say decreased perfusion, but in fact decreased perfusion causes increased mean transit time, so there seems to be some inconsistency in his interpretation, so I'd really want to confirm those findings based on the actual study.

Q. This is a report where nobody can reach a conclusion just from looking at the report itself; right?

A. It seems there are some questions that remain.

Q. And this is a really important issue, isn't it, this CT perfusion scan, in terms of determining his condition on the 18th?

A. I think the MRI is probably the more useful study.

Q. Is this not an important study?

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A. At this time it does not seem very important because this was done, as you stated, on the 18th when by that time he would have been much more outside the window that many hours post-onset -- like if this was done much earlier, then it would be an important study.

Q. Now, this study, though, tells us there is no evidence of ischemia; correct?

A. That's what it says. I can't corroborate.

Q. Right. And ischemia is inadequate perfusion; right?

A. Well, then it would be an oxymoron to say decreased perfusion without decreased perfusion --

Q. Well, you can have decreased perfusion without ischemia, can't you?

A. Yeah. It depends how you define ischemia.

Q. Well, right. Well, ischemia is inadequate perfusion to supply the metabolic needs of the tissue in order to avoid tissue death; right? Isn't that --

A. Yes.

Q. Well, you can have inadequate perfusion that is not so inadequate that the tissue dies; right?

A. Yeah, that's possible.

Q. So what he's saying here is there's no evidence of ischemia. How is it possible that with no

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tPA and no embolectomy, there isn't complete interruption of blood flow at the M1, M2 branch of the left MCA in this patient? How is that possible?

A. There is decreased perfusion throughout, so we know that this occlusion is having an effect on perfusion. That's at least the one consistent part -- is the MCA distribution has decreased perfusion.

Q. There was decreased perfusion on February twenty -- excuse me -- December 23, 2015? The vessel was already narrowed?

A. I don't think we have a perfusion study at that time. That's the only way you can tell decreased perfusion. An MRA does not tell you about perfusion -- an MR perfusion does. And this is, as far as I'm aware, the only perfusion study that he had.

Q. The perfusion scan of February 18th, 2016, does not reflect stoppage of blood flow at the M1 or M2 branch of the left middle cerebral artery, does it? Doesn't reflect stoppage?

A. No, it does reflect -- it is entirely consistent with a blockage of the M2 branch.

Q. Okay. Relatively normal cerebral blood flow and cerebral blood volume without evidence of ischemia is entirely consistent with complete interruption of blood flow, according to you?

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A. Yes. Absolutely. And I can explain if you'd like.
Q. No. I'll just take that bit of guidance --
A. Okay.
Q. -- and write it down. Do you know that the treatment of this gentleman consisted of bedrest, allowing his blood pressure to climb, and to keep his head down?
A. That sounds reasonable, yes.
Q. That's described by Dr. Valdivia in one of his notes as permissive hypertension. Do you understand that to be an accepted method of treatment?
A. Yes, certainly.
Q. It worked very well for Mr. Ruffino, didn't it?
A. Can you clarify what you mean by that?
Q. Well, for an individual like Mr. Ruffino, would an NIH stroke scale of three be a good outcome?
A. I don't think having persistent neurological deficits of speech immobility is a good outcome. No.
Q. What would be a good outcome measured by an NIH stroke scale then?
A. Zero.

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Q. Zero? Okay. Therefore the only good outcome is a perfect outcome; right?
A. No.
Q. No? Well, what are the probabilities then -- let's talk about outcomes for a moment. If you use tPA as the only intervention, intravenous tPA, what is the distribution of outcomes using the NIH stroke scale as the final arbiter of how good the outcome actually is?
A. Some people achieve that and some people don't.
Q. I asked about distributions, not just generalities.
A. I don't have a distribution in my head.
Q. What percentage of patients have an NIH stroke scale of zero to two following tPA in vessels like those that you say were occluded here? What's the distribution of those?
A. It is -- all I can is it is a greater distribution than without tPA.
Q. But greater than a null set is meaningless? Wouldn't you agree?
A. Not to the patient who doesn't get tPA.
Q. What about in terms of data that's useful to people?

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A. Uh-huh.
Q. What's the percentage then of those that do get tPA in these vessels that have an NIH stroke score of zero to two after this successful timely treatment?
A. As I said, the meaningful distribution is that it's a greater distribution without tPA.
Q. Tell me what the distribution is, instead of comparing it to something that is meaningless. Better than something that is unknown and undefined is not answering the question, Doctor.
A. It's not unknown or undefined what the outcome is without tPA. That's very well known and well defined.
Q. I didn't ask you what it was without tPA. I'm going to ask you one more time.
A. Okay.
Q. What is the outcome with tPA with an NIH stroke scale of zero to two?
A. What is the probability?
Q. What is the outcome, the distribution of probabilities?
A. I don't understand the question.
Q. Okay, I'll ask it a fifth or sixth or seventh time until we communicate. What percentage of

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patients with timely tPA, intravenous tPA, end up with an NIH stroke scale of zero to two when the occlusion is comparable to the occlusion here, left MCA M1 or M2?
A. Over what time period? Like when --
Q. As a result of the treatment, timely treatment with tPA.
A. No. No. Sorry. What -- it's measured at different times after the stroke in terms of the improvement, so we know that there's a great proportion, let's say -- I don't have the exact number, but a greater percentage at 24 hours, but not everyone gets to that scale at 24 hours, and then over time still more people, a greater percentage, reach that over seven days.
Q. Okay. Well, let's take both. At 24 hours post-tPA, timely tPA comparable to Mr. Ruffino, what percentage of them have an NIH stroke scale of zero to two and what percentage at seven days have an NIH stroke scale of zero to two?
A. Yeah. I mean, I'd have to look at that exact number, but it's certainly, I would guess, around the 50 percent mark.
Q. Around 50 percent? Both 24 hours and at seven --
A. And then higher at seven days, above 50

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percent.
Q. About 50 percent?
A. Above.
Q. Above or about or near?
A. At 24 hours, about, and by seven days, above.
Q. And surely I'll find that somewhere. Is there an article that says that? Is there a set of guidelines that says that?
A. Again, as always, I'm basing my opinions on the synthesis of the medical literature. That's --
Q. Just what you've gathered as you've gone through life?
A. Hopefully that's how physicians work, not based on one study, but on synthesis of experience.
Q. Synthesis?
A. And seeing patients and reading the literature.
Q. What about the modified Rankin score? What's that distribution?
A. Again, I can't quote it right now off the top of my head.
Q. What percentage of patients who have timely tPA for an occlusion like this one end up with an NIH stroke scale of three at 24 hours?

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A. If they start with an NIH stroke scale of four, so that would be basically having none to minimal improvement, I would say less than half have no improvement. I would say the majority have improvement -- significant improvement.
Q. And the time for administration of tPA, according to you in February of 2016, was up to how many hours after last normal?
A. I mean, the FDA approved after three hours and here we do it up to four-and-a-half hours.
Q. I asked in terms of standards of care, this continuing synthesis stuff that you've given us. What was the standard of care for a place like StoneCrest in terms of how long after last normal tPA was permitted to be given?
A. I think definitely under three -- within three hours and in selected cases up to four-and-a-half hours.
Q. And what was the criteria for selected cases up to 4.5 hours?
A. I think those would be determined based on the individual -- again, synthesis of that patient based on risk factors for bleeding, the size of the stroke.
Q. Risk factor for bleeding?

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A. The size of the stroke.
Q. Size of the stroke based on clinical assessment?
A. Largely, and risk factors of bleeding, diabetes being the main one, or use of blood thinners. So there are certain things you weigh in that longer time window to make sure the patient will bleed and not -- will not bleed -- and have a benefit, as you alluded to, so you're more selective in that extended time window.
Q. You have to become more selective outside of three hours?
A. Exactly. Three hours universally should be given. In this case, it was within three hours, but --
Q. What was within three hours?
A. The time he presented, from onset of his stroke symptoms to when he was evaluated.
Q. Oh, let's talk about that a little bit, and in fact we did discuss it. I didn't get to it. When was he last normal?
A. Last normal that I can tell was 12:00 PM, exactly at noon that day.
Q. And had he had a TIA earlier that day?
A. I think that's unclear. He had an

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event -- again, a transient neurological event -- but not one that was similar or entirely consistent with his TIAs.
Q. What transient neurological event had he had on the morning of February 17th, 2016?
A. I believe the main symptom of this event was dizziness.
Q. And what time did that start?
A. Sometime between 8:00 and 8:30 AM.
Q. First time he had any problems at all was between 8:00 and 8:30 in the morning; correct?
MR. CUMMINGS: Object to the form.
A. First time that day that he experienced dizziness was between 8:00 and 8:30 AM.
Q. (By Mr. Gideon) First time Mr. Ruffino had any problems at all was between 8:00 and 8:30 on the morning of February 17th, 2016?
MR. CUMMINGS: Object to the form.
A. No, of course as we've stated very clearly, he had multiple prior TIAs prior to that.
Q. (By Mr. Gideon) I wasn't asking about the 15th, the 14th, the 13th --
A. You're saying that day.
Q. Talking about the day of the 17th.
A. Okay.

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Q. February 17th, 2016. First time he had any problems that day were between 8:00 and 8:30 when he experienced dizziness?
A. Yes.
Q. And you base that on what?
A. Based it on a number of -- synthesized number of things. The --
Q. Well, synthesize it with specificity for us. What's that come from, since you weren't there, you didn't take a history?
A. Sure. Based on when he presented to the ER, what he complained of, from the EMS report, from his own deposition. I believe those are the three main sources.
Q. What about his wife's deposition?
A. I did not based on that since she wasn't there at 8:00 to 8:30 AM.
Q. Oh, she wasn't?
A. No.
Q. What about his history to any of the physicians at Centennial?
A. I didn't base it on that, no.
Q. Why did you not consider that?
A. Because he was having a stroke at that time and I don't -- one is he's had a stroke and he may

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not be entirely reliable to remember the next day what his exact -- happened in that very busy day before, so --
Q. Is there a correlation between somebody having stroke symptoms and impairment of memory?
A. Can be.
Q. Well, if he was having a TIA, which is a time-limited neurological event, doesn't that also affect his ability to recall detail?
A. It depends. I mean, it wouldn't last, but it can affect it temporarily.
Q. Sure. Well, the underlying cause is the same in each? The question is whether or not it causes a permanent change; right?
A. The size of the ischemia could also be larger with a stroke than the TIA.
Q. Right.
A. So it could affect more of the brain and affect memory more completely.
Q. Right. But in this particular case you have considered the ER record, which is his history that morning to the people in the ER; correct?
A. I believe so.
Q. He is the historian there?
A. Yes.

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Q. You've considered the EMS record, which is his history; correct?
A. Yes.
Q. And you've considered the deposition of John Ruffino months and months later?
A. Yes.
Q. Right?
A. Yes.
Q. No other sources?
A. I mean, to me those seem like the most reliable and commonly-used sources when someone presents with these kind of --
Q. Well, perhaps they do, but you have not concerned yourself with whether this man is a reliable historian, have you?
A. No, I always concern myself with that. When someone presents, we want to make sure the sources are reliable, and given the consistency of this story, it seemed very consistent that he had something happen between 8:00 and 8:30 that involved dizziness. That's the furthest I could go given the information we had.
Q. Well, the history you've just given us that you accepted is totally inconsistent with the history that was given to the folks at Centennial; right? (Hands document to witness.) Here's a copy of

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the history given to Dr. Michael Nottidge (ph) at Centennial, which is inconsistent with what you just told us. The night before yesterday, he went to bed in usual state of health. In the morning yesterday, he got ready to go to work. At that time the wife noted that the patient was not speaking normal and that he was confused. At about 08:00 while at work, he had increased right-sided weakness and aphasia and dysarthria. This history that was given back in February of 2016 reflects that he had problems when he was getting around in the morning, and if you looked at his wife's deposition, you know that he got around between 5:00 and 6:00 in the morning; right?
A. Sorry. He got around -- can you clarify what you mean by "got around"? He was able to --
Q. As he was getting around to go to work, it was always at 5:00 to 6:00 in the morning.
A. Okay.
Q. Right?
A. That sounds right.
Q. Let's just take these building blocks. She testified that he got around at between 5:00 and 6:00. When I deposed him, he initially said he went to work at 7:00, but then he admitted he went to work at 6:00.

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A. Okay.
Q. These symptoms described in this note to Dr. Nottidge are all occurring as he is getting around before he goes to work at 06:00; right?
A. According to this note, yes.
Q. Yeah. And you saw his wife's deposition, didn't you, where she said specifically she was there when her husband gave Dr. Nottidge this history, that it was from him?
A. Yeah.
Q. Remember that?
A. Again, that's why I don't feel like this is a reliable report.
Q. Okay. Let's see if I can understand the logic of Dr. Dhar. You base your conclusion on last time normal based on history from Mr. Ruffino to the EMS people, to the ER, and in his deposition, and you completely ignore the history he gave to Michael Nottidge on the morning of February 18th, 2016?
MR. CUMMINGS: Object to the form.
Q. (By Mr. Gideon) Right?
A. I don't think ignore. You relatively weight it, but more importantly, I made my opinion, as you asked about earlier, based on reasonable care in a similar facility, and so I base my opinion on what

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information was available to those physicians caring for him on the 17th, not what he subsequently might have told someone.
So I'm basing my opinion on what was known when he presented, which was that he had dizziness that started at 8:00 to 8:30 and he was fine earlier in the day, so that's why I choose that, along with the fact the next day his memory was not as good.
Q. Is that right?
A. He had already had a stroke, we see on MRI, so based on my synthesis and my plentiful experience with medical notes, I feel this note the next day is less reliable than when someone comes directly to the ER with a very clear story that's consistent. That's why I choose to not believe this note.
Q. I see.
A. Yeah.
Q. Do you see your role in this case, too, to decide where to find the truth in terms of factual things? You're not just offering opinions on standards of care and causation as a scientist, but you're also a truth arbiter? You decide where the truth lies?
A. I'd like to think I look for the truth, yes.

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Q. Yeah. And not only look for it, but you decide where it ultimately ends up?
A. I mean, based on the synthesis of information, yes.
Q. So you not only synthesize science and synthesize standards of care; you're a truth meter, too, from a synthesis standpoint?
A. Well, I think you always have to judge the reliability and validity of information, yes, that's always very important.
Q. Okay. Well, if we conclude -- if, for example, a jury concludes that Mr. Ruffino is not reliable, then your last time to normal calculation could be terribly wrong, couldn't it?
MR. CUMMINGS: Object to the form.
A. Again, I'm basing what the physicians would have known and should have known on the day he presented.
Q. (By Mr. Gideon) I'm talking about the truth. I'm trying to synthesize truth a little bit, too. If the jury decides that Mr. Ruffino is a -- perhaps not only a poor historian, but dishonest, if they make that decision -- which you know is their prerogative, not yours -- your calculation of last time to normal could be terribly wrong? You recognize that,

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don't you?
MR. CUMMINGS: Object to the form.
A. I recognize anything's possible, but I'm giving my opinion based on the information I see.
Q. (By Mr. Gideon) Yeah. Now, if in fact what we just talked about -- and that is if at 6:00 in the morning Mr. Ruffino has symptoms that include what we just talked about in Dr. Nottidge's note, dizziness, confusion, and then at 8:00 to 8:30 it extends to slurring and problems in his right upper extremity -- when was he last normal?
A. Again, he was last normal at noon that day.
Q. So each time somebody's symptoms stop, the clock resets for the administration of tPA?
A. Exactly.
Q. Where will I find that in any literature or textbook anywhere --
A. I think --
Q. -- that as soon as the symptoms stop, the clock resets for the administration of tPA?
A. That's standard daily teaching for tPA, yes.
Q. Just --
A. I can't name a -- which chapter it's in.

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I would assume it's in any chapter. That's -- every stroke physician knows that.
Q. Everybody knows that?
A. Yes. That's one of the basic tenets of tPA administration, is last known well. If someone gets better, then the clock starts again. I don't think it's written down in an article. It may be, but I certainly couldn't list that article.
Q. Well, what was this man's NIH stroke scale then at noon in this case?
A. From the best documentation that StoneCrest provided, it was zero.
Q. And how long did this man's NIH stroke scale continue to be zero after noon?
A. Some time around between 12:20 to 12:30, he had these symptoms start up again and his NI stroke scale would have gone up.
Q. To what?
A. We don't know, because I don't see it was clearly timed or documented what -- there's poor documentation, in my opinion, of his neurological examination by the physicians caring for him.
Q. Well, that's -- that criticism's not in your report either, is it?
A. I thought I did state that it wasn't well

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documented, so --
Q. Well, what you just shared with us, though, that the documentation was poor by the physicians -- that's not in this report either, is it?
A. I certainly say the communication between physicians was poor.
Q. Look, Doctor, I just asked about documentation. Don't answer a question I didn't ask. Is there anything in your report that addresses poor documentation of neurologic status? Pretty simple question.
A. I think the only statement is where on the facts -- the facts --
Q. Don't tell me about other statements.
A. Yeah.
Q. I want to know where in this report is there a statement that the doctors did a poor job of documenting the neurologic status of this patient, period. That's all I want to know right now.
A. I don't believe there's a specific statement on that.
Q. I asked you earlier if you had omitted your opinions and you said no, and each time we continue our discussion it seems like we keep coming up with more opinions that you express and then you can't

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find them in the report. Why is that?
A. I mean, I don't think that was a central opinion to what I was trying to say. It's simply you asked a question and I came up with a response to that, but it probably wasn't an opinion or thought I had at the time when I prepared this report.
Q. Well, I do want to know -- instead of you offloading the inability to answer a question based on criticism of somebody else, I want you to tell us using your synthesis of the facts the NIH stroke scale at various points along the way. When the patient arrives in the morning and is first seen at about 9:48, what's his NIH stroke scale then?
A. Again, it's not documented. I can only, from what we have, guess it was zero.
Q. At noon, it's --
A. Zero.
Q. And when Dr. Archer sees the patient between, shall we say, 12:20 and 12:54, it is four, according to his own documentation; correct?
A. Sometime in between noon and 2:00 PM, it's four, yes.
Q. Now, you recall from looking at the nursing notes that the patient's symptoms wax and wane throughout the rest of the day, don't they?

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A. There was subsequent to that some changes in his exam through the day, yes.
Q. Yes. Such that subsequent to 12:20 to 12:54, there are times when the NIH stroke scale would in fact have been zero; correct?
A. Sorry. Say that time period again.
Q. After 12:54, post-Dr. Archer's initial evaluation of the patient, there are times when this patient's NIH stroke scale is zero; correct?
A. I cannot -- again, because it was not documented -- verify that. All I can say is that at least till 3:00 PM it seemed like he had deficits as reflected by Dr. Chitturi and Dr. Archer.
Q. And then after 3:00 PM --
A. Yeah, that I don't know.
Q. -- there are times when there are no deficits documented; correct?
A. In the nursing note.
Q. Yeah.
A. But not in any physician notes.
Q. One of the factors that somebody who is actually caring for a patient has to synthesize is to determine whether tPA is indicated based on minimal or improving symptoms; correct?
A. Correct.

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Q. That's one of those tough things that a neurologist or an ER physician has to evaluate as they synthesize things in real time; right?
A. Yes. Yes.
Q. And this patient had minimal symptoms on presentation?
A. No.
Q. No?
A. No. At 12:00 when he had his code stroke, he had significant symptoms, not minimal.
Q. Did he present at 12:20? I thought you told us he presented at 9:48 in the morning.
A. No, you said that. I said his stroke presented, which is what the presentation refers to, not when the patient happened to come to the ER. Presentation is presentation of the stroke.
Q. Ah, I see.
A. Which we've clarified as 12:20.
Q. At arrival at the hospital at 9:48 when he first comes in, his NIH stroke scale is zero; right?
A. That is not the question you asked, which --
Q. I'm asking it now.
A. Yes. As far as I can tell, it was zero.
Q. And is it traditional to give tPA to

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patients with an NIH stroke scale of zero?
A. No.
Q. Would it be responsible to give tPA to patients with a stroke scale of zero?
A. No.
Q. Would it be malpractice to give tPA to a patient with a stroke scale of zero?
A. Not in every case, no.
Q. Not in every case?
A. No.
Q. Do the guidelines support giving tPA to a patient with a stroke scale of zero?
A. Again, guidelines don't apply.
Q. I asked about guidelines. You know, I have looked to try and find your guidelines and I haven't ever found any -- any publications by you on this topic, so I've got to look at guidelines published by other people. Do the other people's published guidelines like the AHA and the American Stroke Association -- do they recommend or authorize tPA in a patient with a stroke scale of zero?
A. Guidelines don't authorize anything.
Q. Do they encourage or recommend it?
A. They don't encourage. They do not state they should be given with minor or resolving symptoms,

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and then leave it to the physician's discretion, and so there are cases where an NIH stroke scale of zero could very much necessitate -- and it could even be below the standard of care to deviate from the guidelines, as you've asked me before, and give tPA to someone with an NIH stroke scale of zero. I don't believe in this case it should have been done, but I'm just simply answering your question.
Q. Well, I'm glad. Then in this case we don't have to deal with you saying that tPA should have been given when the patient arrived?
A. That is correct.
Q. And you agree it shouldn't have been given until -- the earliest was about 12:20 to 12:54?
A. That's correct.
Q. And by that time this is now at least four hours post his history of dizziness and complications; correct?
A. It's six months post his onset of symptoms, as we've established.
Q. Six months post?
A. He's been having these symptoms for six months.
Q. Really?
A. Or sorry -- yeah, six months. August --

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isn't -- didn't we clarify August was his first episode?
Q. I'm talking about February. I'm talking about hours --
A. Yeah. I'm talking about onset of symptoms for him, his first ever symptoms, because there's no artificial time -- midnight becomes a new day.
Q. I get to ask the questions today.
A. Okay.
Q. I'm talking about February 17th, 2016. Get that in your mind. At 12:20 to 12:54, by your own analysis of history, the initial dizziness, the initial symptoms on that day had begun at 8:00 to 8:30; correct?
A. No.
Q. No?
A. Incorrect.
Q. What had occurred at 8:00 to 8:30, Doctor?
A. He had perhaps, as we said, a transient neurological or a TIA or transient neurological event at that time.
Q. All right. Well, then how long did the TIA last that began at 8:00 to 8:30 that morning?
A. As far as we can tell, it had resolved by 10:00 AM when he was triaged when he was no longer

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having dizziness and had a normal exam and an NIH stroke scale of zero.
Q. And was he still having slurring of his words at 9:30 to 9:35?
A. That I don't believe is documented.
Q. No?
A. Whether he had that or not.
Q. Did you ever get a copy of the EMS record?
A. I did see that he --
Q. The question is, did you get a copy of the EMS record?
A. I don't recall, but I saw it mentioned somewhere.
Q. You saw somebody refer to it?
A. Yes.
Q. It might have been in another deposition?
A. Might have been.
Q. Well, if in fact this individual had a TIA, did the TIA start at 8:00 and resolve at around 10:00? Is that what you're telling us?
A. There was -- sometime in that time frame of two hours, there was an event that led to his presentation.
Q. And I am to understand then that, according to standards of care as you share them with

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us and guide us, that as soon as the symptoms stop, there's a complete reset on time?
A. Yes.
Q. And therefore all you would ever really need to do is make sure that if somebody's got symptoms suggestive of a stroke, it's just have as much as a 15-minute window when they stop and it's a complete reset?
A. Yes.
Q. Surely that is in some publication in the western world. Can you identify it for me?
A. Not right now, but I would be amazed if every stroke neurologist didn't agree with that statement.
Q. You'll be amazed by it?
A. Yes.
Q. And what are you going to do if it turns out that other stroke neurologists, not only think that it's wrong, but it's irresponsible to say that? What would you do if that's what you were confronted with?
A. I'd be shocked.
Q. How about on the 17th itself, the H & P? Did you ever look at this particular record? (Hands document to witness.)
MR. CUMMINGS: Thanks.

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MR. GIDEON: Uh-huh.
Q. (By Mr. Gideon) In the -- I want to show you what I'm focusing on. There's a description of the symptoms at the top, which you would expect in an H & P.
A. Okay.
Q. 56-year-old Caucasian male, medical history significant for hypertension, hypercholesterolemia, who presented to StoneCrest ED on account of dizziness and slurred speech with facial muscle weakness as well. This started around 8:00 PM (ph) yesterday morning. Do you see that?
A. Yes.
Q. Patient is, however, a poor historian, so history was obtained by chart review and also from wife. The patient stated he has been having these acute events with speech difficulty and facial weakness of unknown, I guess, duration for the past one month. He's had about three episodes so far which really lasted for about three to five minutes and resolved completely afterwards. Then it says the patient presented to the StoneCrest Medical Center facility way, way after the thrombolytic window and at that time. Doesn't make sense, that sentence. Down below that -- it would be one, two, three, four more lines --

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it says, the history, patient woke up with the above-listed symptoms. Do you see that section?
A. Yes.
Q. Now, if that history is correct that he woke up with slurred speech, dizziness, and facial muscle weakness, by accepted standards his last time normal would be when he went to bed; isn't that right?
A. For that episode, yes.
Q. Yes. Let's make this history and physical at Centennial the next exhibit. What's the number?
THE REPORTER: That will be 12.
[Exhibit 12 marked for identification.]
Q. (By Mr. Gideon) Who's the chair of your program?
A. Of neurology?
Q. Yes.
A. David Holtzman.
Q. Spell the last name?
A. H-O-L-T-Z-M-A-N.
Q. Next thing I want you to see is there's a neurologist who was involved in this patient's care at Centennial whose name is Ron Wilson. You'll see his name under the attending up on the right side. (Hands document to witness.)
A. Okay. Yeah.

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Q. Have you ever seen this record before?
A. I don't believe so, no.
Q. I'm going to be very interested to see just how much of the Centennial chart you've seen. How do we go about doing that? How do we take an inventory of what's on your computer reflecting what you actually have seen?
A. I mean, I can share the file somehow or print them out, I mean, if you would want me to print them out.
Q. I don't want to waste paper.
A. Right. That's why I --
Q. I really don't want to waste paper, but can you download the Centennial materials you actually received onto a disc and make that disc an exhibit to this deposition, please?
A. Okay. I can put everything that I've received and then you can have that.
Q. I want just the Centennial record --
A. Okay.
Q. -- reflecting what you received, please.
A. Okay.
Q. Will you do that as an exhibit and give it to this court reporter?
A. Okay. I'll -- yeah. Because I don't

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recall reviewing this record --
Q. All right. Well, Ron Wilson, I'm telling you, is an experienced neurologist in Nashville.
A. Okay.
Q. He's been practicing a long time. And what I want to ask you about is his assessment -- it's on the second page of the materials I've given you, which is the NIH stroke scale.
A. Okay.
Q. And it shows that he has facial palsy, minor paralysis, a one, in that category. He has language aphasia, mild loss of fluency, a one, and dysarthria, slurring, intelligible, one, for a total NIH stroke scale of three. Do you see that?
A. Yes.
Q. Now, in this particular case what tells us that this man wasn't having another TIA at the time this NIH stroke scale was done?
A. I mean, the fact that he'd already had an MRI that showed a stroke.
Q. Anything else?
A. Again, from this record, no, but the fact that he had these deficits -- if he had them consistently, then I would say that would be the best --

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Q. Yeah, but you can't tell us he had them consistently because you haven't seen the Centennial chart?
A. Right. No, you'd have to be able to examine him at two points and document that, and that -- I don't have that data in front of me.
Q. Correct.
A. Yes.
Q. My point is you know from what you have seen that when he has described transient ischemic attacks, he has described difficulty with speaking, slurring of his words; right? Right?
A. Yes.
Q. Which he's doing here. He has described facial weakness. You saw that in the history with Dr. Luck back in November 2015; right?
A. Yes.
Q. What else is positive? Mild loss of fluency. If that's new, then that only accounts for an NIH stroke scale one, doesn't it?
A. New since when? Sorry.
Q. New as of that date. What I'm getting at is, can you tell us he wasn't having a recurrence of a TIA at the time Ron Wilson saw him on the morning of February 20th?

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A. Mainly because Dr. Wilson doesn't say that. He would say these are new deficits that --
Q. I didn't ask what Ron Wilson will say. I asked what you can say. Can you tell us this man wasn't having another TIA -- yet another one -- at the time of this exam?
A. I think that's highly unlikely, yes.
Q. Can you say it wasn't happening, is my question?
A. Yes, because Dr. Wilson mentioned -- MRI with a stroke already, so once you've had a stroke, you can no longer diagnose someone with a TIA anymore.
Q. Well, once he's had a stroke, then is he no longer capable of having tPA again?
A. A recent stroke is a contraindication to tPA, yes.
Q. How recent?
A. Any time in the last few weeks, even.
Q. So if in fact somebody's had a stroke and it's in the last few weeks, then that is a contraindication for tPA?
A. If he then had another stroke subsequently.
Q. Right.
A. Like even this next day, if this was

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another event, then you would not want to give him tPA.
Q. Was this another event on the 20th?
A. Not that I can tell from this note, no.
Q. Well, let's look in fact at what's in Page 3 of these materials I've attached here.
A. Okay.
Q. This is the note by Ron Wilson, and as I've assured you, he is a capable neurologist, and he's looked at the case, he's looked at the imaging. Unlike you, he's actually looked at the imaging.
A. Okay.
Q. You see where he describes at the top -- he says there's a complex left middle cerebral artery hypoperfusion syndrome due to partial occlusion of MCA vessels. He doesn't say the patient has been occluded, does he?
A. He has partial occlusion.
Q. Yes. Now, what's the difference between a complete occlusion and a partial occlusion, as if us laypeople can't figure that out on our own?
A. Some flow versus no flow.
Q. Yeah. And in this case this man had some flow back 12-23-15, didn't he?
A. We don't have a perfusion study on 12-23-15.

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Q. It's probable he had some flow despite occlusion?
A. Right. Absolutely. I would -- given that he wasn't having a stroke back then, I would say very likely he had flow, yes.
Q. Here Dr. Wilson talks about, not a stroke, but to hypoperfusion syndrome, doesn't he?
A. No, his very first diagnosis is acute thromboembolic -- separate issue -- cerebrovascular accident. That's his diagnosis, and that, as you know, is a synonym for stroke. So his main diagnosis is this patient has a stroke. He's in my most charitable explanation, I think, going deeper into the cause based on hypoperfusion, et cetera, but clearly he believes he had a stroke, because as you said, he reviewed the MRI that showed a stroke.
Q. I see. Well, do you know if the acute thromboembolic cerebrovascular accident was auto-populated or not?
A. I don't know how these notes work, no.
Q. Focusing on what is --
A. I hope not.
Q. Focusing on what is free text, meaning what is written by the physician himself -- you see that reference to free text, assessment and plan?

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A. Yes.
Q. You know what free text means, don't you?
A. Yes.
Q. It means the doctor wrote it himself; right? What is a hypoperfusion syndrome due to partial occlusion? Share with us your synthesis of that information.
A. My synthesis is that he's saying that, even despite the stroke, he still has areas of his brain that are hypoperfused beyond the stroke because of this still-partial occlusion, and so that's why we need to keep his blood pressure high and watch his deficits to make sure he doesn't have a bigger stroke.
Q. I see.
A. That he clearly recognizes the stroke, because even though, as you said, this is not free text, that doesn't mean it's not valid. It's -- his Number 1 problem is the most valid statement in that impression, which is stroke. That's certainly a fallacy to say the free text is more valid than the selected Problem Number 1 that we select specifically that that's the most accurate problem.
Q. I see.
A. So I wouldn't say that's fair to impugn him with -- say that he didn't select that carefully.

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Q. What's --
A. But I think he's gone beyond that, to be more specific.
Q. Okay. What is neuronal hibernation?
A. That's a good question.
Q. You're the -- synthesize it for me.
A. I didn't present that word. I -- if you give me the context, I guess I can --
Q. It's in the report?
A. Where?
Q. Give me your expertise on neuronal hibernation?
A. Where is that in the report? Oh, right here at the bottom here.
Q. It's right in front of you.
A. Ischemic neuronal hibernation.
Q. Plan is to continue supportive care hoping for collateral formation and recovery of the areas of ischemic cerebral neuronal hibernation. What is that?
A. From what I can interpret here, he's saying that there is this broad area of hypoperfusion for the whole MCA, again, as we discussed, likely because he saw that CT perfusion study that showed that area, that there's more of his brain beyond what's already stroked that's at risk and we want to preserve

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the blood flow. He talked about blood pressure, head-down position, and we want to make sure that tissue, which may be hibernating, does not go on to have an infarct.

Q. Okay. Next note, it's the next day. I suspect you probably haven't seen this either. Why don't you go ahead and tell us if you have? (Hands document to witness.)

MR. CUMMINGS: Thank you.

A. No.

Q. (By Mr. Gideon) No what?

A. No, I haven't seen it.

Q. Okay. There's another reference here, Problem Number 1, free text assessment and plan, complex left middle cerebral artery hypoperfusion syndrome due to partial occlusion of MCA vessels. You want to synthesize that for us and tell us what's that mean?

A. That sounds like the same -- that is, looks like, a copy and paste of what he wrote the day before.

Q. But it's free text again, isn't it?

A. The free text -- just copy and paste --

Q. Yes.

A. -- so it's actually less spontaneous than

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anything else.

Q. What does it mean? Does it mean the same thing as the day before?

A. Yeah. It looks like the same as that statement he made before, that there's this thing -- he still wants to keep the blood pressure up. Hypertension seems to have stabilized. To keep that blood circulating.

Q. Because of the area of occlusion that you now know exists -- excuse me -- the area of stenosis that you now know exists in the left middle cerebral artery distribution that was apparent 12-23-15?

A. Right. So even -- he's saying that he's had a stroke, but we want to preserve the rest of his brain, which still has hypoperfusion.

Q. Right. Why is there still hypoperfusion poststroke?

A. Exactly.

Q. Why?

A. Because he still has that stenosis, so he had the stroke, which is likely due to a clot that wasn't lysed fast enough, and then the stroke is there. We see that on the MRI. But yet he also seems like he's recognizing there's still low flow, so more than just the stroke, which is from the thrombus -- as he

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said, thromboembolic -- he also believes he has a bigger area that could stroke and he's very worried about that and so he's making these notations.

Q. Okay, we'll make a copy of that document and the one that preceded it as the next two exhibits, please.

[Discussion off the record.]

MR. GIDEON: 13 is the disc of your -- what you actually were furnished for Centennial Medical Center admissions, and 14 and 15 will be the last two notes that we've just talked about.

[Exhibit 14 marked for identification.]

[Exhibit 15 marked for identification.]

Q. (By Mr. Gideon) Now, if there were timely administration of tPA, according to your calculations, the patient would have been able to walk out of the hospital in seven days; right?

A. I think more likely than not he would have had better mobility, yes.

Q. I'm going to ask specific questions. Would the patient have been able to walk out of the hospital within seven days if tPA was given in a timely fashion?

A. I think more likely than not, yes.

Q. Would the patient have been able to speak

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to someone in an understandable fashion if he had been given tPA in a timely fashion?

A. Again, I mean, he is able to speak, but he has deficits, and I think more likely than not those would be improved by the tPA.

Q. You're still doing something I asked you not to do earlier, which is to answer questions I didn't ask. Would the patient be able to speak if he'd received timely tPA at the expiration of seven days?

A. I mean, he is able to speak, so that's why I can't answer the question, because even --

Q. Clearly even without tPA he was able to speak; correct?

A. Right. So that's why I was saying it's just more likely he could speak better.

Q. Right. Would -- tPA is not going to make his speaking abilities actually improve over his baseline; right?

A. No, it would improve over the stroke.

Q. Right. Right.

A. The stroke that he had caused him trouble speaking, and if he didn't have that stroke or a smaller stroke, which the tPA would give him a better chance of having, then the speech deficit would be lessened.

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Q. Well, then I'll ask the same question again. TPA does not make you speak better than you were speaking before the stroke occurred, does it?
A. No. No.
Q. You agree with that?
A. Yes.
Q. So if he wasn't a particularly articulate man, tPA doesn't make him as articular as you are, does it?
A. It would not improve his speech, no, beyond that.
Q. When he walked out of Centennial Medical Center on February 26th, what were his limitations, if any? Can I help you find something?
A. I'm trying to see my notes where I reviewed that.
Q. You're looking at a letter Mr. Cummings sent you.
A. That has some of the summaries of the Centennial records and has time points. Because I didn't review the Centennial records in the same detail because I was focusing on the tPA decision on that one day.
Q. Right. We're focusing on something else --

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A. And my opinion wasn't related to that other stuff of what happened later, so I didn't focus on that. That's --
Q. The question remains, what was his condition when he walked out of the hospital on February 26th, 2016?
A. Yeah, I don't have that. I don't --
Q. And if the answer is, "I don't have a clue," just tell me.
A. Yeah, I don't have the exact information on that.
Q. How long was he out of the hospital before he returned?
A. I know he did return. I don't have the exact time frame between the two.
Q. Is the answer, "I don't know"?
A. Yes.
Q. Why did he return to Centennial Medical Center?
A. I believe he had some new or worsening symptoms. Again, I didn't review those records in detail.
Q. How long after his discharge did he have new or worsening symptoms?
A. I don't know.

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Q. What was the cause of his new or worsening symptoms that you don't know about?
A. I don't know.
Q. What is Mr. Ruffino's level of function today?
A. I believe from the deposition, which is what I did review, he has some trouble with speech and mobility.
Q. Well, the deposition was videotaped. Did you actually look at the video?
A. No, I just have this -- the written report of that.
Q. The written -- the transcription?
A. The transcription.
Q. You didn't look at his wife's description of what he can and cannot do?
A. I did look at his wife's deposition as well.
Q. Wouldn't you think that somebody who is significantly impaired would not be driving?
A. Depends on the impairment, I guess.
Q. Well, let's talk about --
A. Speech impairment doesn't -- sorry.
Q. Let's talk about him. We'll talk about motor impairment to begin with.

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A. Okay.
Q. Should a person with significant motor impairment be driving?
A. Can't provide an opinion without knowing the specific motor impairments, but --
Q. What motor impairment did he have as of the time of his deposition?
A. I believe just some trouble walking, then trouble with his arm. I have to find the exact details.
Q. Is it not in your notes?
A. Again, I don't have as many notes on the long-term outcomes as I do on that date. That's, again, what I focused mostly on.
Q. Well, there's nothing in your report that tells us that you're going to be offering an opinion about Mr. Ruffino's disability, employment --
A. Right.
Q. -- income-earning capacity, is there?
A. No.
Q. And is this one area where you're not going to be offering an opinion on a subject that's not in your report?
A. Right. The only opinion I'm offering is that -- the chances of tPA helping that ultimate

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disability, but not what the implications of that are.
Q. Right. The only thing you're telling us is there are chances that tPA improves the outcome?
A. Yes.
Q. But you just can't specify by how much?
A. Yes.
Q. Did you know before you and I talked today that Mr. Ruffino fell at home in the bathroom, and even though he was progressively worsening at home, he waited 15 hours to go back to the hospital? Did you know about that?
A. I didn't until I reviewed the expert disclosures.
Q. Now that you know about that from the expert disclosures, isn't it irresponsible for a patient to -- who admits he was told if anything changes, come back -- to wait 15 hours and get worse and worse and worse? Don't you think that's irresponsible?
A. I mean, I don't know the specifics of this case, but in general you would hope someone who gets worse should come back, yes.
Q. Well, I'm talking about this case.
A. I haven't reviewed the specifics of this case.

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Q. Well, I'm giving you the specifics.
A. I can't comment without reviewing them myself.
Q. You cannot comment on Mr. Ruffino's own admitted failure to return, even though you've read his deposition?
A. I'd have to look at that part again.
Q. Page 82, Lines 18, to Page 83, Line 5, he admitted he should have gone back. But you still can't reach a conclusion?
A. I haven't reviewed that before, and that wasn't part of my opinion, no. Which page?
Q. Well, I'm going to ask you right now. Isn't it part of your opinion that a patient who admits he was told, "Come back immediately if you have any problems," falls at home, and waits a full 15 hours before returning, while he is getting progressively worse -- isn't that a failure to exercise reasonable care for his own health, safety, and welfare?
A. Which page was this on?
Q. I want you to answer my question.
A. Well, I would just like to have the information. I think in general that's true, yes.
Q. What about in this case?
A. Again, I don't know enough details in this case to tell you.
Q. This is one area where, because it involves a potential criticism of the patient, you're unwilling to answer the question?
A. No, it's specifically because I don't feel comfortable without having done my due diligence to read the records and know truly the details of anything that happened at Centennial, as you pointed out in great detail, or what happened after, that I simply don't feel comfortable providing an informed opinion on all the details of that day and what happened and -- I know a lot of things happened -- so I just simply don't feel comfortable doing that at this time.
Q. Well, this is the last time to do that. Do you have an opinion or not?
A. Again, I don't have enough information to have that opinion.
Q. All right. Let's talk about these trials for just a moment. I just want to make sure you and I have an understanding about what the trials did and didn't do.
A. All right.
Q. The Interventional Management of Stroke Trial Three, which is called IMS III -- you are familiar with that, are you not?

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A. Generally familiar, yes.
Q. Isn't it true that before anybody would even be enrolled in that study, they had to have an NIH stroke scale of greater than or equal to 10?
A. That sounds about right.
Q. And they compared IV tPA within three hours versus embolectomy; correct?
A. I believe so, yes.
Q. And isn't it true that they reported there was no significant difference in outcome between the intravenous IPA-only group -- excuse me -- intravenous tPA-only group and the endovascular group for a good outcome measured as a modified Rankin scale of zero to two? Isn't that the result of that study?
A. In that study, yes.
Q. And isn't it true that in that study where they looked at the patients with an NIH stroke scale of 10 or greater, they got what was defined as revascularization based on a thrombolysis and cerebral infarction Grade 2B to 3 in only 41 percent of the tPA cases?
A. That sounds about right.
Q. 41 percent is less than 50 percent, isn't it?
A. I believe so, yes.

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Q. Let's talk about the MR and recanalization of stroke clots using embolectomy, which is more commonly referred to as Mr. Rescue; right?
A. Okay.
Q. People enrolled in this were either ineligible for intravenous tPA or they had persistent vessel occlusion after intravenous tPA; correct?
A. I don't recall the details of that trial to say, but sounds reasonable.
Q. Well, how would you have any significant numbers of people with persistent vessel occlusion after intravenous tPA, given what you've told us today, that it always succeeds in more than 50 percent of the cases?
A. I would say always and 50 are oxymorons also, so definitely it succeeds in some cases, as I've said, but there are many cases where it doesn't, especially in those proximal occlusions, unlike what he had.
Q. Right.
A. So there's definitely a big role for embolectomy in these treatments. As I said, in this case tPA would have provided a benefit more likely than not, but that doesn't mean that there's also additional benefit from more aggressive treatment.

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Q. Well, I want to talk about what's actually been published and is not just a synthesis that you're sharing with us. How could you ever have a pool of patients in sufficient numbers to look at people who didn't get benefit from intravenous tPA given what you've already told us today? You've made it sound as if that pool is so vanishingly small.
A. No, I simply said it was over 50 percent. That still leaves half of all strokes, which are roughly 800,000 every year in America, so that's quite a few patients who don't improve with tPA.
Q. 400,000 people a year?
A. No, I'm saying there's 800,000 strokes per year.
Q. Yeah, and I did a little math. 50 percent of 800,000 would be 400,000?
A. Sure.
Q. 400,000 people don't improve with tPA each year in the United States?
A. Well, 800,000 don't get tPA, first of all. Unfortunately, most people don't get tPA.
Q. Well, you're running away from the topic.
A. No.
Q. 800,000 people a year have a stroke in the United States.

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A. Okay.
Q. What percentage of them get tPA?
A. Probably less than 10 percent.
Q. Why?
A. They come to the ER late. They have some other exclusion criteria. There's a number of reasons why the rate's so low, mainly because of late presentation.
Q. Mainly because of late presentation by these folks?
A. Yes.
Q. But I thought the time reset when the symptoms stopped.
A. And most people don't have what he had. He has a very unique case where his symptoms reset. In those cases then you re -- most people are not lucky enough to have that scenario where you can reset.
Q. What percentage of the 800,000 a year actually get tPA?
A. Again, I --
Q. You're an expert. Tell me.
A. No, I'm not a machine, though. It seems like you're asking me these questions as if I know every study off by heart and every number off by heart. I simply don't.

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Q. Well, give us a number. You brought up 800,000 strokes per year in the United States.
A. Right. And I said roughly 10 percent get tPA.
Q. 10 percent, so it would be 80,000?
A. Sure.
Q. That's a large enough number for the Centers for Disease Control to track; right?
A. Sure.
Q. Do you know if the CDC actually tracks outcomes for those patients that get tPA?
A. No, I do not.
Q. All right. Let's talk about the next trial, ESCAPE, also known as endovascular treatment for small core and anterior circulation proximal occlusion, with emphasis on minimizing CT to recanalization times; right? That required an NIHSS of greater than five, didn't it?
A. If you say so.
Q. I say so. Do you agree?
A. I don't disagree.
Q. It also required moderate to good collateral circulation, didn't it?
A. I have no idea.
Q. Do you know if the CT, the CTA in this

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case on the afternoon of the 17th of February, showed good collateral circulation from the meningeal arteries?

A. I believe there were some collaterals, but not -- and again, I don't have that information in front of me.

Q. You didn't record anything about the existence or the degree of collateral circulation, did you?

A. No, I didn't record that.

Q. And there's nothing in your report about the existence or degree of collateral circulation on the CTA, is there?

A. No.

Q. The fact of matter is the CTA on the afternoon of the 17th shows exuberant luxury perfusion, doesn't it?

A. Luxury perfusion is, I mean, I think different from collaterals, but --

Q. It shows exuberant luxury perfusion, doesn't it?

A. I can't comment on that. I don't have that information.

Q. Why not?

A. I didn't see that when I reviewed the CTA.

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Q. Don't you think that you should have, if it was present, seen it -- if present?

A. Well, I mean, there's lots of things that were present that were not seen, like the MRA was read as normal, and so if they can be things that are seen by --

Q. We're not talking about somebody else. We're talking about an expert with your expertise. You, for example. When you ultimately got the MRA of 12-23-15, you saw that the radiologist had missed the degree of occlusion in the MCA, the degree of stenosis in the MCA?

A. I mean, I certainly suspected there was a degree of stenosis when I reviewed it, yes.

Q. Yeah. Likewise, on the CTA the radiologist didn't describe luxury perfusion.

A. And I --

Q. But did you see it?

A. I didn't see it, no.

Q. What significance does luxury perfusion have?

A. It can mean that there's an area of damage that's already happened to the brain.

Q. Yeah.

A. And I certainly didn't see that.

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Q. In the --

A. And sorry. Very different from collaterals, so I thought you were asking about collaterals.

Q. Well, actually, I'll ask about both.

A. Okay. Sure.

Q. Did you see any robust collateral circulation in the CTA on the afternoon?

A. I generally don't review the collaterals on CTA. I mean, angiography is a lot better for collaterals, but I did see some, but I am not comfortable grading -- not as a radiologist -- a grade of collaterals.

Q. Now, on the ESCAPE trial, in order to be enrolled, the patients that had the endovascular intervention had to have a minimum NIH stroke scale of 13; correct?

A. Okay.

Q. Isn't that correct?

A. I don't know.

Q. And for the controls, which were tPA alone, they had to have a minimum stroke scale of 12, didn't they?

A. I'm not sure.

Q. Well, what do you know about the ESCAPE

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trial?

A. I don't have every information on every trial in my mind, no.

Q. I didn't ask about every trial and all the trials.

A. I --

Q. I asked about one trial. What do you know about the ESCAPE trial?

A. Not that level of detail.

Q. I didn't ask level of detail.

A. Okay.

Q. What do you know about the ESCAPE trial, if anything?

A. Not enough apparently to answer these questions.

Q. What do you know about the SWIFT PRIME trial? Anything?

A. I know that it was a trial that showed benefit of adding Solitaire-based retrieval to tPA in patients who had large vessel occlusion.

Q. Any more than that?

A. That's enough certainly to take away for clinical practice.

Q. I see. You know that in order to be enrolled in SWIFT PRIME, you had to have an NIH stroke

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scale of a minimum of eight and no more than 29? Didn't you know that?

A. That also sounds correct, yes.

Q. You also had to have a target mismatch profile between the ischemic core and the penumbra, didn't you?

A. In some of those trials, yes.

Q. In SWIFT PRIME specifically?

A. I can't remember that specifically. I know some trials did have specific --

Q. Do you know in this case whether Mr. Ruffino would fit the SWIFT PRIME criteria?

A. No, I specifically -- no, we don't know because he didn't have the appropriate studies to tell us.

Q. And let's talk about extending the time for thrombolysis in emergency neurological deficits intraarterial, the EXTEND-1A. This was one where participants were split between IV tPA only, which you say works all the time, and IV tP -- excuse me -- and endovascular therapy, plus intraarterial tPA; correct?

A. Again, I don't recall the details of the differences of all these trials.

Q. Do you recall whether there was a mismatch ratio required to enroll?

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A. No.

Q. And if so, what there was?

A. No.

Q. Do you recall the results where tPA intravenously alone in tertiary centers in the SWIFT -- excuse me -- EXTEND-1A trial -- the most recent of these trials, the best of these trials -- what was the percentage of patients that had revascularization from intravenous tPA alone?

A. How do they define revascularization?

Q. The same thing I talked about before.

A. Well --

Q. 2B to 3 flow through that vessel.

A. The reason I ask is, again, not knowing the trial off by heart, if they didn't do anything except tPA and didn't do endovascular in that group, how would they know the revascularization, because you need to have the angio to know that? So did both -- did that tPA group also have an angiogram?

Q. Yes.

A. Okay.

Q. And what they did was they compared intravenous tPA --

A. And they did the --

Q. -- versus intravenous tPA plus the use of endovascular intervention?

A. But I guess I'm asking if those ones who didn't get endovascular -- they still put them through an angiogram to measure the flow? I mean, that --

Q. Yes.

A. I'd have to --

Q. To determine if they reached the --

A. That seems --

Q. -- thrombolysis in intracranial -- whatever it is -- the 2B to 3 scale -- to show that it's been revascularized?

A. Seems unnecessarily invasive, so I don't recall that's even the case. I'm not saying that you're lying. I'm simply -- I can't verify that because I find it hard to believe that an ethical trial would put people through angiography without giving them the benefit of the procedure, so I can't comment on that, whether that's true or not.

Q. Well, the thing that really is material is to take this trial that was done at some of the really fine centers -- and in fact, wasn't it done here, too?

A. Some -- SWIFT PRIME was done here.

Q. SWIFT PRIME? Yeah.

A. Other ones might be.

Q. Yeah, there were two people from Washington University in St. Louis in either SWIFT PRIME or EXTEND-1A --

A. Definitely SWIFT PRIME, I think --

Q. I can't remember -- two people from Washington University in St. Louis, neither of which was you. But what I thought was interesting about the EXTEND-1A was this was a case where they had one set of patients that got intravenous tPA alone, and then they had the other group that was more aggressive where they got the intravenous tPA and the endovascular embolectomy.

A. And --

Q. And what I'm asking you is this, Doctor. Do you know what percentage of patients were revascularized to the 2B/3 scale with tPA alone?

A. In this large group of more severe strokes, proximal occlusions, I would guess it's less than 50 percent.

Q. Oh, it is. It's 37 percent, substantially less than 50 percent.

A. In a diff --

Q. Yes.

A. In a very different patient population.

Q. How many of the John Ruffinos were in the EXTEND-1A trial?

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A. I don't know, but I would guess very few.
Q. How many of the John Ruffinos were in the SWIFT PRIME trial?
A. Also a minority. That's why --
Q. Minority of how many?
A. I don't have it in front of me. I could look up if they present that data.
Q. Yeah.
A. But certainly I, again, would not base my treatment of him on a trial of just general stroke patients. I --
Q. I know. You base it on synthesis, this kind of glow that comes from experience?
A. I would hope that you would want your physicians to do that.
[A brief recess was taken.]
Q. Were you ever able to score, yourself, Mr. Ruffino's NIH stroke scale, the NIHSS, after Dr. Archer's assessment of four at 12:20 to 12:52 on February 17th, 2016?
A. Are there times, you mean?
Q. Yeah. Were you ever able, based on what you've done in this case, to assign an NIH stroke scale to Mr. Ruffino the rest of the day, any time the rest of the day, after Dr. Archer assigned a score of four

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between 12:20 and 12:52?
A. No, I think the only time --
Q. Is that --
A. Yes --
Q. You were able to -- if so, what time?
A. Only -- yes, with Dr. Chitturi's note, which is the only neurologist note that gave you the details, I was able to say that he had this facial weakness, slurred speech, and aphasia, which in fact is similar to what we discussed in Dr. Wilson's note, so in that three to four range. And that's the best estimate I was able to obtain later in the day.
Q. So based on Dr. Chitturi's affidavit and the note, you think the NIH stroke scale at about the time of Dr. Chitturi's consultation was three to four?
A. Yes, it seemed consistent with that range.
Q. Was Mr. Ruffino's NIH stroke scale ever higher than three to four through the remainder of his stay at StoneCrest?
A. The only time I could estimate that it was a little bit worse, into the five or six range, was based on a nursing examination. That's -- although we have later -- at 19:27 some note is made of some weakness in the grip in the arm, which would add at least another point or two to the scales, so again, it

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might be to the five or six range.
Q. Anything higher than that at any time?
A. I don't believe I was able to see any other higher scores.
Q. Have we now covered all of your opinions?
A. We've covered the opinions -- I mean, the only thing backing up those opinions we haven't covered is the examination and -- versus the reliability of the history. That was something that I have an opinion on, that the examinations by the nurse are more reliable than the history, so that's kind of related to that opinion that we haven't quite explored, so --
You were asking about -- this history was unreliable and someone said this and the time. So my opinion was largely based on the fact that we haven't explored that if you have a patient like that where you do have this lack of clarity, and on again, off again, then it's my opinion that you have to strongly go by the examination that someone who's qualified does, not just a patient who may or may not recognize things, so that's one I don't think we touched on, is my strong beliefs that that -- in this complex scenario -- is really critical is what exams that we have that were normal and then became abnormal.
Q. Okay. Well, are you telling me then that

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you place greatest weight on the nursing examination?
A. Any medical examination, including Dr. Archer's, but we only have the nursing ones before then, so I base it on the sequence of examinations more so than the point you made about the history being variable. That's why I really rely on that more, because there are times when histories are not 100 percent clear and people may say things the next day that were not -- you have to go on what that patient showed you in terms of aphasia, in terms of facial droop, in terms of arm weakness.
We know he had those at some point, and so my opinion is largely based on that fact more so than all this history and recurrent symptoms and what he says. So that's the one part I didn't expound on.
Q. Is there anything else that we have not touched on where you have an opinion that we've not covered today?
A. No.
Q. Do you wish to revise the answers you've given me today in any respect?
A. The only answer I would want to clarify after this is what degree of the Centennial notes I reviewed, because I really don't remember reviewing these notes, so I don't know what degree I have. I'd

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have to get back to you on that. I know I reviewed some mention of how he was doing at that time, but I don't know if I reviewed the medical notes themselves.

Q. You don't have any recollection?

A. I mean --

Q. You might have reviewed more than you recalled today, is what you're saying?

A. Yes, but it seems like I reviewed less than the -- Dr. Wilson's notes seem very reasonable, but I don't remember reading those, so --

Q. Good. Well, we're going to find out what you got to review; right?

A. Sure. Absolutely.

Q. You're going to load that down to a disc?

A. Right.

Q. Now, you're charging me $500 an hour to ask you questions and get answers today; correct?

A. Correct.

Q. Will any of that money go to Washington University School of Medicine?

A. No.

Q. Will any of that money go to the division of neurology and the department of internal medicine at Washington University?

A. No.

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Q. None of that will go to a resident or fellow or any patient in need of care? It will all go to you individually; correct?

A. And mainly the government, it seems today.

Q. Well, do you pay a higher tax rate in the United States than anybody else?

A. No, I suppose not.

Q. You don't pay a 50 percent more probable than not tax rate anymore, do you?

A. I don't believe so.

Q. No. How do you say most of it goes to the government then? What's the deal?

A. No, it just feels that way today because I just submitted my taxes this morning.

Q. Oh, I see.

A. And so all of that money -- a lot of it is owed at the end of the year.

Q. Yeah. Yes, tell me this. Do you make $500 an hour when you're in the neuro ICU caring for patients?

A. I've never calculated that, but I doubt --

Q. Let's do it. Let's do some calculations. I don't want to intervene and intrude on your personal financial matters. You may come from a wealth family, you may not. That's none of my business. But in terms

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of what you're actually paid as a doctor --

A. Yeah.

Q. Do you make $500 an hour when you're in the neuro ICU with a resident or fellow when you're caring for a patient?

A. I don't believe so.

Q. What do you think you actually make on a per-hour basis? Take your salary, yourself.

A. All right.

Q. Calculate it by your clinical hours, and tell us what you actually make per hour, ballpark, plus or minus $10 or $15.

A. I mean, for my clinical weeks it might be $20,000 a week when I'm on call for a whole week, so I guess you could divide that by however many hours.

Q. And how many hours are you on?

A. It depends how many times I get called, but you could say 40 hours. It's probably more, obviously. So 20,000 divided by 40 is, I think, 500.

Q. What about when you're doing teaching? Do you get 500 bucks an hour?

A. No, I'm -- we mainly get paid for our clinical time. The teaching and research is kind of for free.

Q. Yeah.

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A. We support ourselves mainly through our clinical activity. That's how --

Q. All right. So let's say you spend one week a month in clinical activities and you're getting $500 an hour.

A. Yeah.

Q. But you have three more weeks where you're not getting paid anything?

A. Yeah. Sure. Yeah.

Q. You're getting more like 125 bucks an hour, aren't you?

A. If it's averaged out over that time, yes.

Q. Right. It's true then that this medical/legal after-the-fact opinion testimony is the most lucrative thing you do as a doctor, isn't it?

A. No, I do -- like I said, the other consulting I do is actually far more lucrative.

Q. Doing what? For whom?

A. Other just non-legal consulting.

Q. Like what? What are you talking about?

A. I believe it's in my CV, but I work for ConsultOn (ph), organ donation issues, transplant issues, for example. Yes.

Q. Uh-huh. And you get paid more than 500 bucks an hour for that?

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A. Yes. Or speaking as an expert. It's also more than $500 an hour.
Q. Well, on the speaking rotation --
A. Yes.
Q. -- are you speaking at the behest of a pharmaceutical company?
A. In that case, yes.
Q. And are you speaking as an offered or an invited expert by a pharmaceutical company --
A. Yes.
Q. -- on the issues of administration and efficacy of tPA?
A. No, not tPA.
Q. No? Have you ever done a presentation where you've been asked by a pharmaceutical company to lecture other doctors on indications for or efficacy of tPA?
A. Not a paid lecture, no.
Q. No? Okay. One of the things you did have was a subpoena, and I asked you to bring some materials with you, and I noticed it when I flipped through it earlier. There were some things from your --
A. Past.
Q. Well, off the CV that we did have. You'll want to keep that.

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A. This is a list here. So --
Q. Let's make sure he has this. That's that letter?
A. Oh yeah, that's --
Q. But there were some things I saw that were some downloads of some presentations you'd made.
A. Yeah.
Q. Early CSF volume changes predict malignant edema and large hemispheric infarction. Can you tell me what this two-sided material is? (Indicating document.)
A. Those two one-sided posters that you had asked for that reflect research that I'm working on in stroke. And you'd requested those --
Q. Where was this presented?
A. It might be in your report. Oh, it's in my CV, certainly. There were two different conferences. This one was the International Stroke Conference, which is the American Stroke Association, and I believe the other one was at a conference for translational science.
Q. Are the materials in the early CSF volume changes poster board -- are they still accurate?
A. Yes. I mean, these ones are -- yes, they are.

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Q. Okay. We'll make this the next exhibit.
[Exhibit 16 marked for identification.]
Q. And another specific item I asked for from your CV is this series of slides -- it looks like PowerPoint slides -- that deal with evidence-based prevention and treatment of neurological complications after acute ischemic stroke. You still have the PowerPoint slides, don't you?
A. Yes. This was printed off from those.
Q. And the material in this particular series of slides remains accurate today?
A. No, not necessarily. These are quite old, so some things in stroke have changed. This is from a number of years ago, so I'd have to look and see what's changed. But they were accurate as of that time, I would think.
Q. They were accurate as of that time, but you can't vouch for them being accurate today; right?
A. I mean, a lot of them probably are, but there are some new trials that have come out, as you've seen in Stroke, even since 2010 or 2012.
Q. Okay. We'll make that the next exhibit. Mr. Witt's going to ask you some questions. While he is doing that, may I just continue to look through your file --

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A. Yeah.
Q. -- so I can see if there's anything else we need to exhibit?
[Exhibit 17 marked for identification.]
A. Yes, those are all the exhibits.
Q. Can I just slide this -- well, here's another one, too -- your report. Put it back in the file. It has a blue sticker on it.
A. Which -- oh, because I'm still referring to this for my -- to answer my opinions.
Q. I thought you had copy of it in here.
A. This is the copy. That's the original. So I can refer to that.
Q. Why don't you use the original?
A. Yeah. Okay.
Q. May I otherwise have this --
A. Yeah. Yes.
Q. -- while he asks you questions? And I'll see what else we need to exhibit.
MR. GIDEON: Thank you for your time.
A. Thank you.
QUESTIONS BY MR. WITT:
Q. Doctor, good afternoon. I represent Clark Archer in this lawsuit that's been filed by Mr. Ruffino and Mrs. Ruffino. What is your understanding of Clark

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Archer's role in the medical care provided to John Ruffino?
A. That he was -- came on shift after Mr. Ruffino arrived in the ER, and sometime after he came on he was informed that there had been a change in the status, and he went to see the patient and found some neurological deficits at that time, and at some point there activated the code stroke.
Q. What specialty does Dr. Archer practice?
A. Emergency medicine, to my understanding.
Q. Would you agree with me that the standard for acceptable professional practice, acceptable medical care, can vary between two physicians who practice different specialties?
A. That's a good question. I mean, for a given disease I would think it was standard, but obviously different specialties have different purviews in some cases, so I'd have to know the specific case, but in general that might be true in some cases.
Q. Did Dr. Archer consult a neurologist in this case?
A. Yes.
Q. Was it appropriate for him to do so?
A. Yes, I believe so.
Q. Why?

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A. I believe he felt the patient was having a stroke, and I believe felt a neurologist could add some additional input to his treatment at that time.
Q. What additional input would a neurologist add if you treat the same disease process the same no matter what your specialty is?
A. I think maybe the more complex aspects could be handled by a neurologist in terms of the endovascular treatment -- that had been relatively new in that time -- knowing if that was an option. And he may have wanted guidance on the tPA. Even though I think emergency physicians are aware of tPA, he may have wanted some extra -- a second opinion. I don't recall in his deposition the exact reasons, but I mean, there are reasons I can imagine why he wanted that extra input.
Q. And that's because the background, training, and experience of a neurologist is different from the background, training, and experience of an ER physician; correct?
A. That's true.
Q. Are you board-certified in emergency medicine?
A. No.
Q. Have you completed a residency in

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emergency medicine?
A. No.
Q. When was the last time you did a single shift as an ER physician?
A. Not since residency.
Q. And that was when?
A. That ended in 2005.
Q. So 13 years ago?
A. Yes.
Q. And I believe I heard you testify earlier that you had at some point spent some time as an on-call neurologist for the ER here at Barnes. Is that right?
A. I mean, I -- not for many years. I mean, when I came, I did some consultations in neurology and was on the call schedule, but that was minimal.
Q. And I believe you said that was in excess of 10 years ago?
A. Yeah, probably around 10 years.
Q. So you believe it's been about 10 years since you've even provided any consult services in an ER; correct?
A. I've not been on the official consult schedule, but we do go to the ER for patients coming to the ICU fairly frequently, but not in the

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official consult role that was asked.
Q. So for patient hand-offs from ER to neuro ICU, you would certainly talk to the ER staff?
A. Exactly. So I have good awareness of what happens in the ER. I train a lot of ER doctors, actually, in neurology and emergency aspects of neurology, so I'm very aware of what emergency physicians know about tPA and other aspects of neurology as part of my work.
Q. Fill in the blanks for me there. You train a lot of ER doctors. Are you talking about residents?
A. Yes.
Q. So --
A. So --
Q. These are not board-certified ER doctors? These are residents that are going through their residency to become board-certified?
A. So when they become board-certified, they have received good neurological training, yes.
Q. Right. Okay.
A. And the primary training they get during their ER residency, at least here, is by working with us in the neuro ICU to see how emergency patients transition from the ER to the ICU.

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Q. To give them the advantage of your background and experience as a board-certified neurologist?
A. To get that -- that's their training before they become ER doctors, yes.
Q. Are there any opinions that we have not discussed already with -- that you hold or intend to express with regard to the medical care provided by Clark Archer?
A. I think I expressed it, but maybe I should restate it in case -- I don't want to be accused of not clarifying -- that code stroke was called, but I do state this here, that the CT angiogram was not done for a time, as we clarified, till after 2:00, so I think there was some delay in that time period that's wrapped up in that acute management, but I wanted to make sure that was stated separately so I wasn't not saying that -- that that was a delay in what Dr. Archer and the team did in the ER to not facilitate a rapid study in terms of the CT angiogram.
Q. So it's clear to me from your report that you're expressing an opinion regarding the cause of John Ruffino's current deficits and that they would have been improved -- in your opinion, more likely than not -- would have been improved had tPA and/or an

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endovascular process taken place?
A. Yes.
Q. Correct?
A. Yes.
Q. But it seems to me in your deposition you're going beyond that causation opinion and you're offering opinions regarding the standard of care that applies to Dr. Archer, a board-certified ER physician, in this case. Am I misunderstanding that? Because I don't see anywhere where it talks about standard of care in your report.
A. Yeah, I guess I have a -- maybe don't have a full understanding of the difference between not doing something -- I guess that's causation versus standard of care. So there was things that identified that were not done that led to that poor outcome.
Q. Right.
A. I maybe misunderstood that was a standard of care issue, but maybe I misunderstood that.
Q. Right. So I thought maybe that was the case.
A. Right.
Q. So that's why I'm trying to clarify this now. As I understand your report, again, you're saying that if tPA or an endovascular process had been used,

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more likely than not, then John Ruffino's neutral deficits would be less?
A. Yes.
Q. Correct?
A. Right.
Q. Are you offering any opinions regarding the standard of care or the acceptable medical professional practice that applies to Dr. Archer, a board-certified ER physician, or not?
A. So I guess the two that maybe weren't spelled out very clearly in my report were to perform an emergent imaging study of an acute stroke patient and to communicate the time of onset information to Dr. Chitturi. Those would be the two aspects that I felt were below the standard of care and led then later to that poorer outcome as well, so I probably didn't state it clearly in that way.
Q. Anything else that you believe violates the standard of care that Dr. Archer did?
A. No, that's it.
Q. So you feel you're qualified to offer opinions regarding the standard of care that applies to an ER physician?
A. As it relates to obtaining emergent imaging and communicating with other neurologists, for

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example, I'm very qualified to know what I would expect an ER physician to communicate to a neurologist about the time of onset and to communicate that we need to get an urgent imaging (ph). Those two things I do think I'm very qualified to comment on.
Q. And why do you think you're qualified to offer opinions regarding the standard of care applicable to a different specialty?
A. Mainly because, as I said, that is the area where our specialties intersect. I work with a lot of ER physicians. I know what the expectations are, and stroke is managed between the two specialties, and it's very critical that both specialties fulfill their roles, and so I'm aware of their role just as they would be aware of the neurologist's role.
Q. Even though you haven't consulted with an ER physician on an active case in the ER, by your own testimony, for over 10 years; correct?
A. But I've been involved in -- correct. I've been involved in hundreds of cases -- when the patients get tPA, they come to the ICU for monitoring, and so that continuum of care is very well known to me because I see hundreds of patients who have that done appropriately -- rapid imaging, good communication of time of onset -- and get tPA.

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Q. Let me review my notes, but I think I'm almost done, Doctor.
A. Okay.
Q. What is it that you feel Dr. Archer failed to communicate to the -- to Dr. Chitturi, the neurology consult?
A. From what I can tell -- and I believe Dr. Archer says this as well in his deposition -- that he heard that these symptoms were new from the nurse who had discovered these symptoms, and so from the best I can tell, it was clear to him that these were new symptoms that had come on at that time, and such -- and I'm more confident in that opinion because he called a code stroke at that time while it was not called when Mr. Ruffino first came in, and that is -- that was very appropriate.
I feel like that was definitely at the standard of care and it was good that they recognize those symptoms, called a code stroke, should have performed imaging to look for the cause why he was now having these new and lasting deficits, but yet he knew that symptoms were new, but yet Dr. Chitturi clearly in his notes says that he believed from his review those symptoms had been there longer. So if Dr. Archer had communicated that, it would have, in my opinion,

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significantly altered the likelihood that tPA would have been given.
Q. So let me make sure I understand your answer. Are you telling me it's your belief that Dr. Archer failed to communicate the fact that these symptoms were new to Dr. Chitturi?
A. Exactly.
Q. Anything else you feel that Dr. Archer failed to communicate to Dr. Chitturi?
A. No.
Q. And if it turns out that Dr. Archer did communicate this concept to Dr. Chitturi, then that wouldn't be a valid criticism anymore, would it?
A. No, if Dr. Chitturi said I definitely heard about this, but yet I still thought it wasn't appropriate to give tPA, then that's a separate criticism. I wouldn't criticize Dr. Archer for that.
MR. WITT: Okay. Those are all the questions I have. Thank you.
MR. GIDEON: I need to ask that we make as the next exhibit -- what's the number?
THE REPORTER: This will be 18.
MR. GIDEON: Number 18 will be the remainder of these e-mails. Number 19 -- and I'll have to ask you to copy this on a color copier. Number 19

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will be the transcript of Dr. Archer that Dr. Dhar reviewed on January 23, 2018. And then there's some highlighting and there's some blue pen on it, so I'd like to have a color copy of that. The --
THE REPORTER: That was 19.
MR. GIDEON: Yeah. 20 will be a copy of the defense Rule 26 disclosures with the heading Ruffino experts on it. There's, again, highlighting in pen, so I'll need to have color copies of that made, too. And I believe that's it. So thank you.
THE WITNESS: Thank you.
[Exhibit 18 marked for identification.]
[Exhibit 19 marked for identification.]
[Exhibit 20 marked for identification.]

[SIGNATURE RESERVED.]

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C E R T I F I C A T E

I, JOHN ARNDT, a Certified Shorthand Reporter and Certified Court Reporter, do hereby certify that prior to the commencement of the examination, RAJAT DHAR, M.D., was sworn by me to testify the truth, the whole truth and nothing but the truth.
I DO FURTHER CERTIFY that the foregoing is a true and accurate transcript of the proceedings as taken stenographically by and before me at the time, place and on the date hereinbefore set forth.
I DO FURTHER CERTIFY that I am neither a relative nor employee nor attorney nor counsel of any of the parties to this action, and that I am neither a relative nor employee of such attorney or counsel, and that I am not financially interested in this action.

JOHN ARNDT, CSR, CCR, RDR, CRR
CSR No. 084-004605
CCR No. 1186

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DEPOSITION ERRATA SHEET

Our Assignment No. J2100034
Case Caption: RUFFINO v. ARCHER

DECLARATION UNDER PENALTY OF PERJURY

I declare under penalty of perjury that I have read the entire transcript of my Deposition taken in the captioned matter or the same has been read to me, and the same is true and accurate, save and except for changes and/or corrections, if any, as indicated by me on the DEPOSITION ERRATA SHEET hereof, with the understanding that I offer these changes as if still under oath.

Signed on the _____ day of _____, 20___.

_____
RAJAT DHAR, M.D.

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DEPOSITION ERRATA SHEET

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RAJAT DHAR, M.D.

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